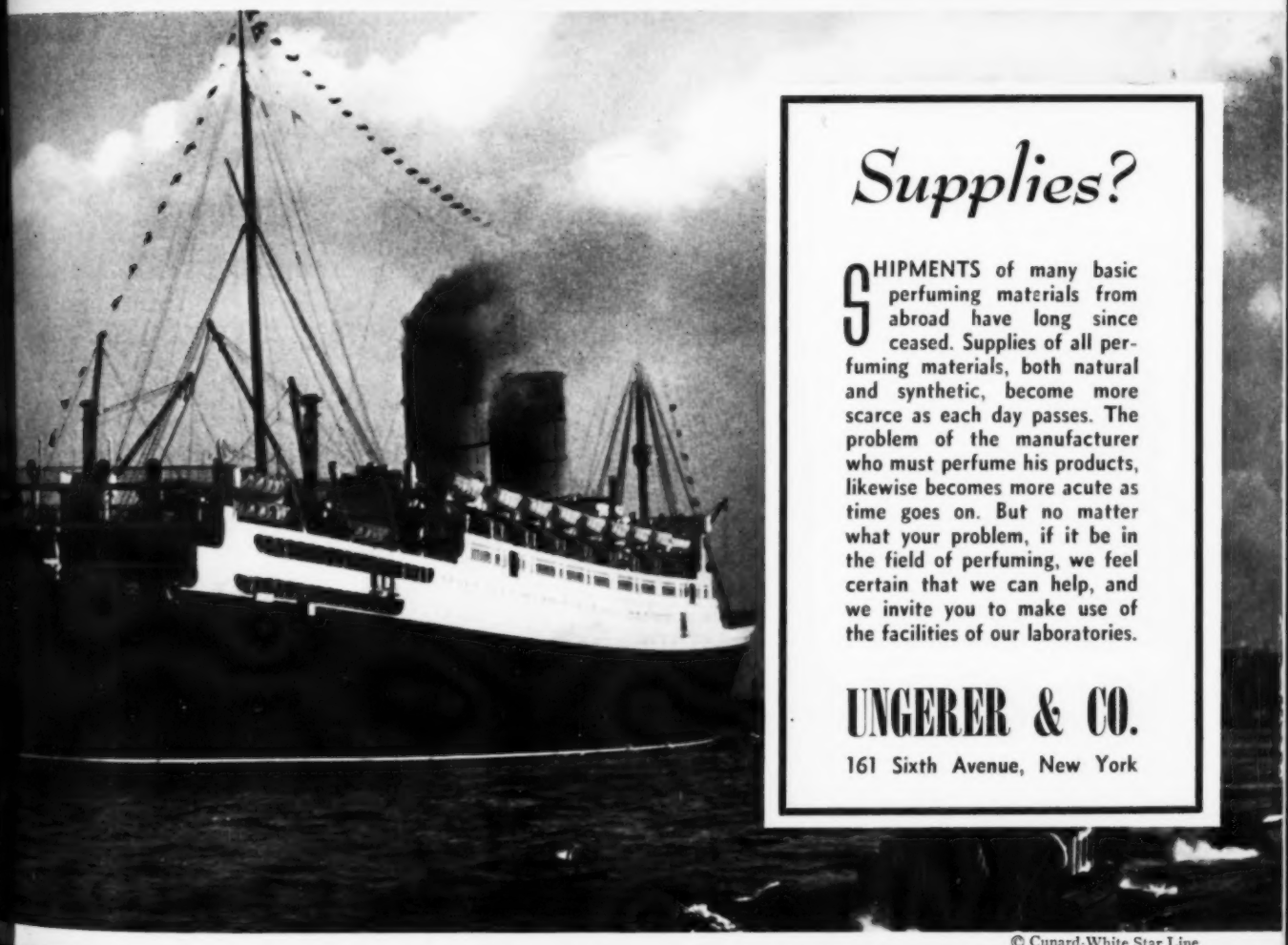
SOAP

SANITARY CHEMICALS



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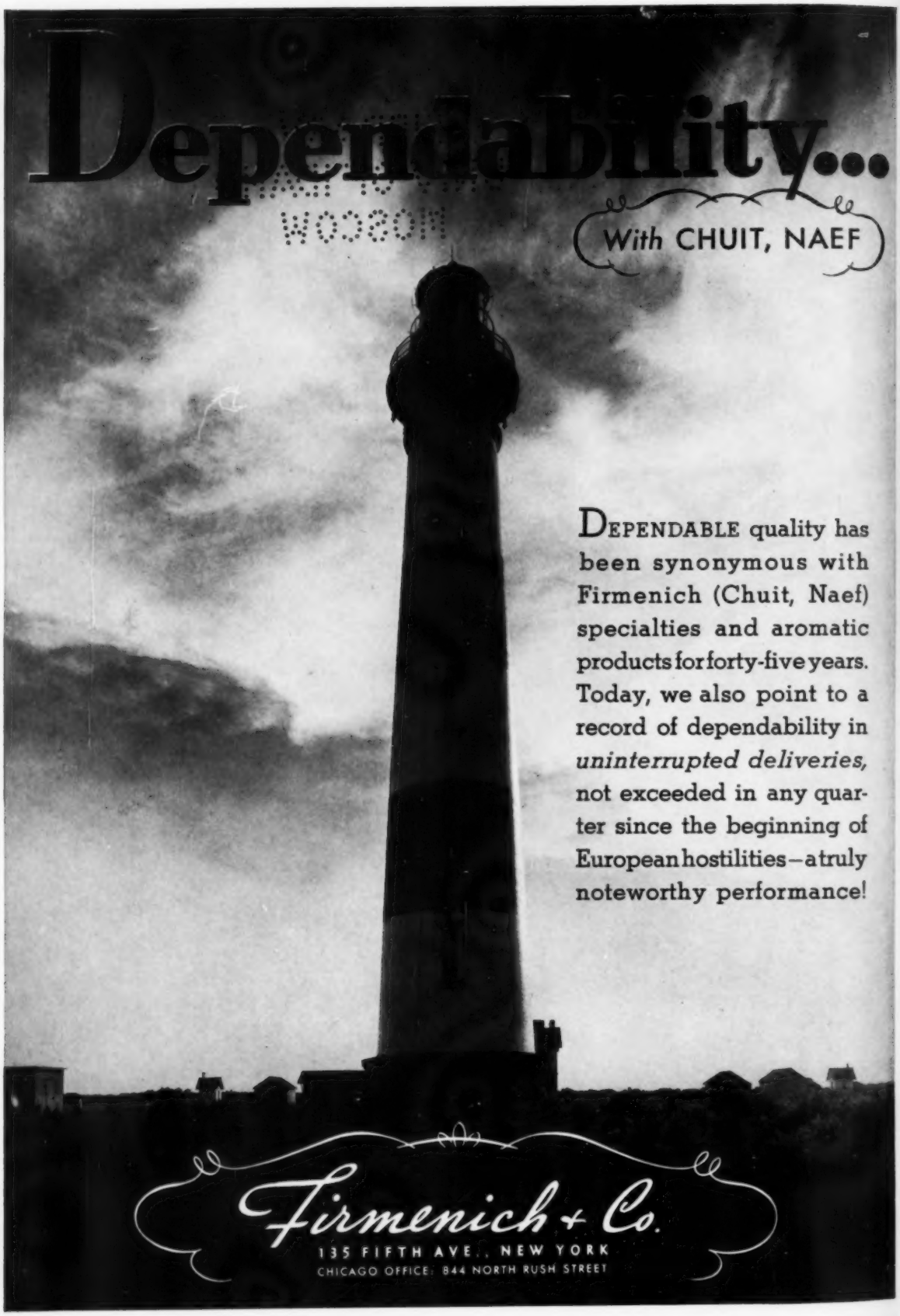
Supplies?

SHIPMENTS of many basic perfuming materials from abroad have long since ceased. Supplies of all perfuming materials, both natural and synthetic, become more scarce as each day passes. The problem of the manufacturer who must perfume his products, likewise becomes more acute as time goes on. But no matter what your problem, if it be in the field of perfuming, we feel certain that we can help, and we invite you to make use of the facilities of our laboratories.

UNGERER & CO.

161 Sixth Avenue, New York


Dependability...
With CHUIT, NAEF
DEPENDABLE quality has been synonymous with Firmenich (Chuit, Naef) specialties and aromatic products for forty-five years. Today, we also point to a record of dependability in *uninterrupted deliveries,* not exceeded in any quarter since the beginning of European hostilities—a truly noteworthy performance!
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Today, that's a mighty conservative estimate! For in the hands of America's skilled workers lies the only salvation of our way of life . . . for many, of life itself. These hands and millions like them make possible the fulfillment of Uncle Sam's pledge to wipe tyranny and intolerance off the face of the earth forever.

That's why it's so important to maintain proper health and sanitation standards in American defense plants. And THAT'S why so many of these plants use only Fuld Bros. Sanitary Chemicals.

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702 S. WOLFE ST., BALTO., MD.

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FULD MAKES it for the LEADERS

Aromatics for soap

BY Albert Verley AND COMPANY

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Now "made in U.S.A."— freeing you from dependence on foreign sources

Aliphatic Aldehydes

C-8 (Octyle) 100%
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C-12 (Laurique) 100%
C-12 (Methylnonylacetique) 100%
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Formerly these fine chemicals — with their welcome addition to the distinction and sales appeal of your perfume compositions—were available only from European sources, at prices beyond the reach of the soapmaker. • Today they are manufactured 100% in our Chicago laboratories, at practical prices, and the perfume industry is using them widely with notable success.

Aldehyde Gras Superieur

A powerful floral character particularly of interest for Violet or Lilac top-note.

Geranium Synthetic

. . . . . also Lavender Synthetic, Bergamot Synthetic.

Both Rose Geranium Bourbon and Rose Geranium African have been reproduced by the House of Verley with amazing fidelity to nature — thus enabling you to save money while maintaining your reputation for quality. Equal progress has been made in the synthesis of Lavender and Bergamot.

Write for working samples and prices—which, in view of the quantities required, are well within the soapmaker's means.

Volume XVIII Number 3

SOAP and SANITARY CHEMICALS

Reg. U. S. Pat. Office

MARCH
1942

SANITARY Products Section, which forms a part of every issue of SOAP, begins on page 71.

MEMBER AUDIT BUREAU OF CIRCULATIONS

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254 WEST 31st STREET NEW YORK, N. Y.

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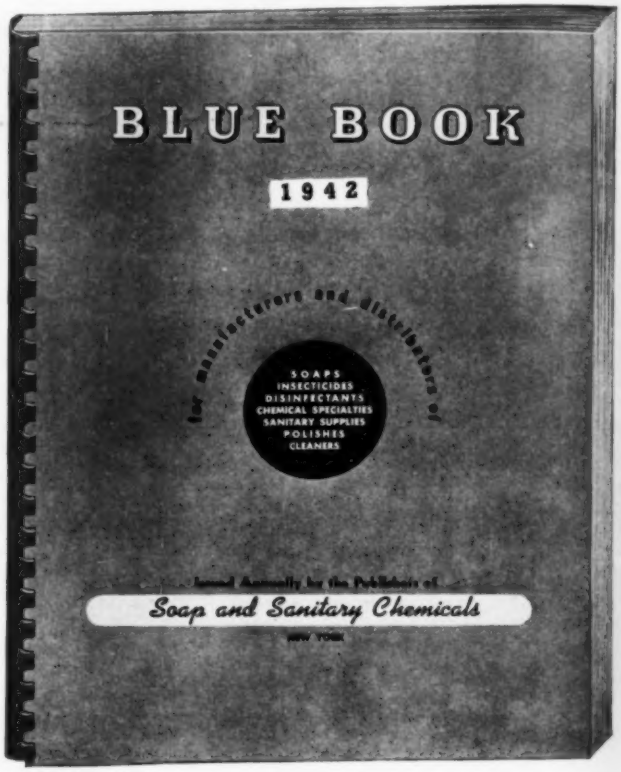
The New 1942 BLUE BOOK

is now in production and will be mailed later this month to every subscriber to *Soap and Sanitary Chemicals.* It is an invaluable reference volume that will find service every day in the year. Keep your copy readily available for day-to-day use. Familiarize yourself with the wide variety of useful information it contains.

If you are not a subscriber to *Soap and Sanitary Chemicals* you will not get a copy of the new BLUE BOOK. Ensure your getting a copy of the new edition as soon as it comes off the presses by entering a subscription to *Soap and Sanitary Chemicals* now. A check for $3.00 (Canadian and foreign—$4.00) the price of a yearly subscription—entitles you to a copy of the BLUE BOOK without extra charge.



Contents of the New 1942 BLUE BOOK

Soap Specifications — Suggestions as to what a properly drawn specification should and should not cover.

Soap Output— A compilation of figures on the record breaking output during 1941.

Soap Fat Statistics— Data on oil and fat consumption during 1941, together with the latest data on stocks for 1942 use.

Soap Buying Habits— A study of the trend in soap buying habits based on a study of a typical market area.

Rotenone— A study of the rotenone bearing plants, their cultivation, importation, use as insecticides, etc.

Insecticide Regulations — New regulations for enforcement of the Insecticide Act of 1910, with a group of interpretations by enforcement officials.

Quality in Floor Wax— What constitutes a good floor wax? A review and evaluation of comparative importance of gloss, water-resistance, non-slip qualities, ease of application and removal, etc.

Paint Cleaners— A review of the various types of liquid paste, and powdered products on the market, with suggestions for their manufacture.

Index to Soap— Composite index to the monthly issues of *Soap and Sanitary Chemicals* for the past five years.

Testing Section — Latest official methods of the National Assn. of Insecticide & Disinfectant Mfrs. and of the Association of Official Agricultural Chemists for testing the efficacy of insecticides, insecticidal raw materials and disinfectants. Included in this testing section will be the Peet-Grady Test, the Seil Method, Gnadinger-Corl Method, F. D. A. Method, Mercury Reduction Method and Rotenone Determination Method.

Association Officers — A list of officers and directors of important trade groups in the soap and sanitary chemical field.

Plus a complete 125-page Buyers Guide Section listing sources of supply for a complete line of raw materials, machinery and equipment bought by manufacturers of soaps and sanitary chemicals.

MAC NAIR-DORLAND COMPANY

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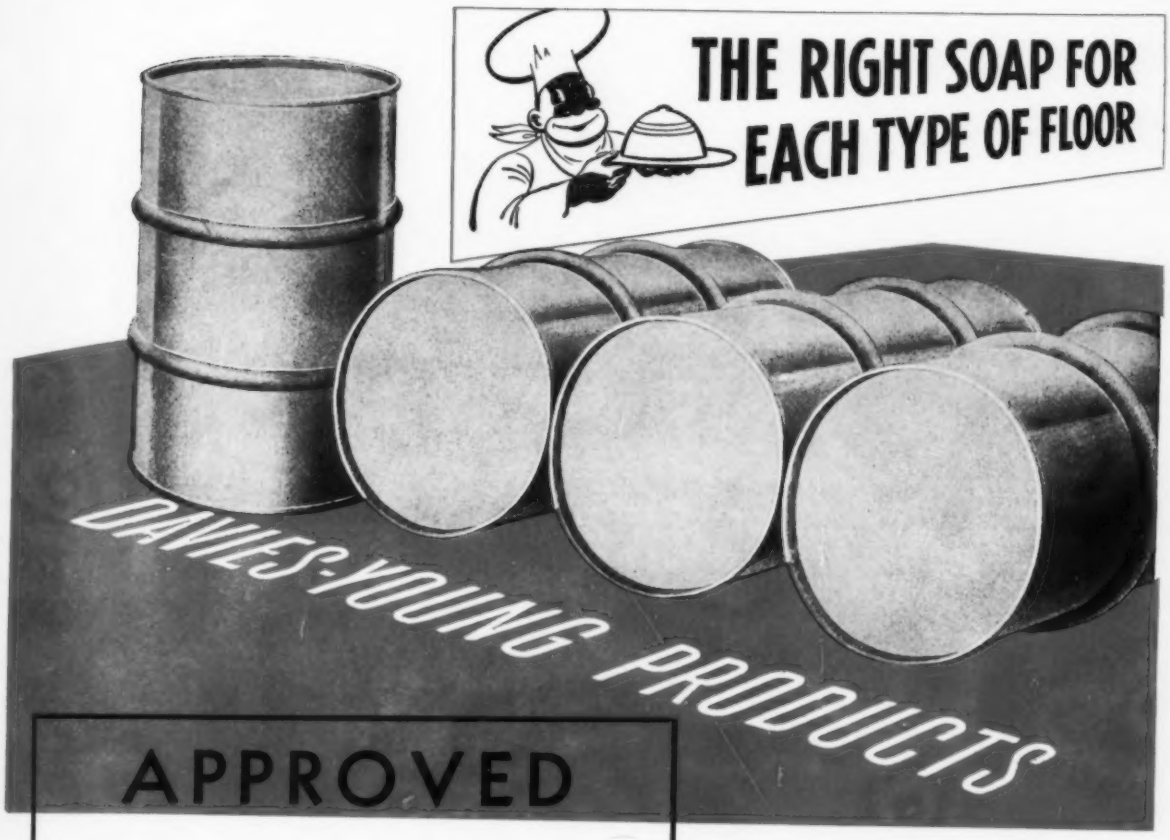

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By The Rubber Manufacturers' Association, Inc.

"BUCKEYE" PLAIN LIQUID FLOOR SOAP

"BUCKEYE" SASSAFRAS LIQUID FLOOR SOAP

"BUCKEYE" WAX CLEANER

"BUCKEYE" SPECIAL RUBBER CLEANER

will again appear in the list of approved cleaners issued by The Rubber Manufacturers' Association, Inc.

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"SANI-SCRUB" Liquid Soap

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Please send us samples, descriptions and prices of Liquid Floor Soaps.

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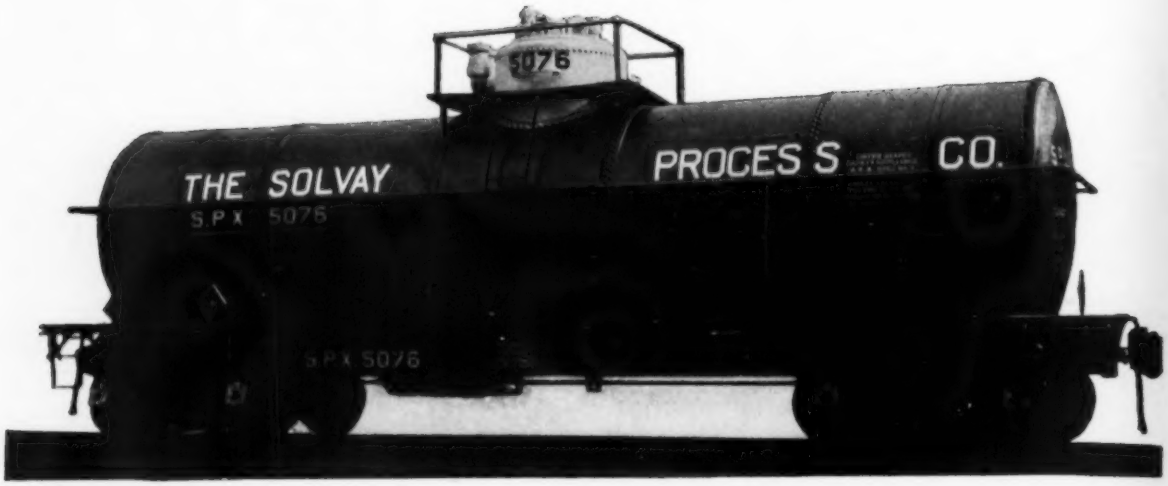

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NO OTHER POWDERED HAND SOAP GIVES YOU SO MANY ALL STAR FEATURES TO SELL

- ★ *Cleans better than a scrubbing brush, yet it's mild as a hand lotion.*
- ★ *Contains lanolin—approved by dermatologists for skin soothing qualities.*
- ★ *No harsh sand or pumice abrasive to clog drains.*
- ★ *Free from acrid chemicals that weaken skin's defense against infection.*
- ★ *Specified by Safety Engineers to prevent Occupational Dermatitis.*
- ★ *HY-O-LAN'S new emulsifiers and penetrants lift grime and grease without rubbing.*

Your salesmen know the size of the *powdered hand soap market* that has been opened by this vast defense effort. If you want them to sell the *buyers who count*—the firms who order ten barrels at a time and think nothing of it—give your salesmen a hand soap that wins the Safety Engineer's okay.

All the salesmanship in the world won't get your hand soap accepted if it contains harsh inorganic abrasives that rub the skin off. Or chemicals that weaken the skin's natural defenses against *Occupational Dermatitis*.

That means layoffs, and layoffs are poison to Safety Engineers. They're hired to prevent them.

The big reason for HY-O-LAN'S sensational acceptance is its endorsement by these *behind-the-scenes* buyers. HY-O-LAN is *safe*. It's as soothing as a hand lotion, yet cleans better than pumice on a scrubbing brush.

That's the kind of hand soap they asked for. HY-O-LAN gives it to them. Sell it. Sell it by the barrel. Sell it in carloads. We can ship all you sell.

HY-O-LAN "F" for Light Duty

Ground finer. Contains more lanolin. Same price as HY-O-LAN *super duty*.

HYSAN **HYSAN PRODUCTS COMPANY**
Manufacturing Chemists
58 EAST CULLERTON ST. • CHICAGO, ILL.
DISINFECTANTS • CLEANING MATERIALS • DEODORANTS • POLISHES • FLOOR TREATMENTS • DRAIN PIPE SOLVENTS
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MORE IMPORTANT THAN EVER .

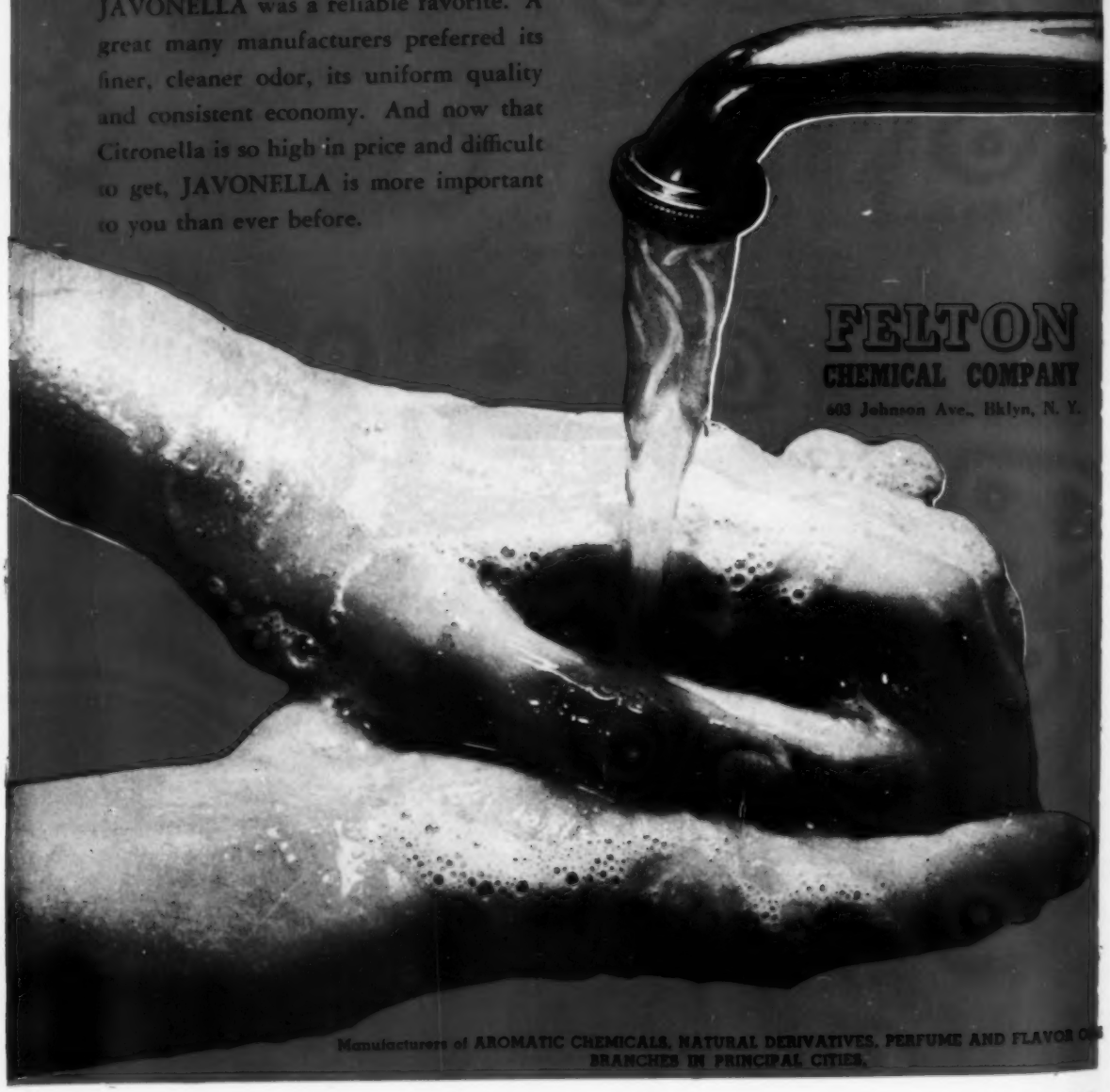
Javonella

PERFECT FOR PERFUMING

★ Laundry Soaps ★ Washing Powders ★ Liquid Cleansers ★ Polishes, etc.

WRITE FOR SAMPLES AND QUOTATIONS

EVEN when oil of citronella was low in price and easy to obtain, JAVONELLA was a reliable favorite. A great many manufacturers preferred its finer, cleaner odor, its uniform quality and consistent economy. And now that Citronella is so high in price and difficult to get, JAVONELLA is more important to you than ever before.



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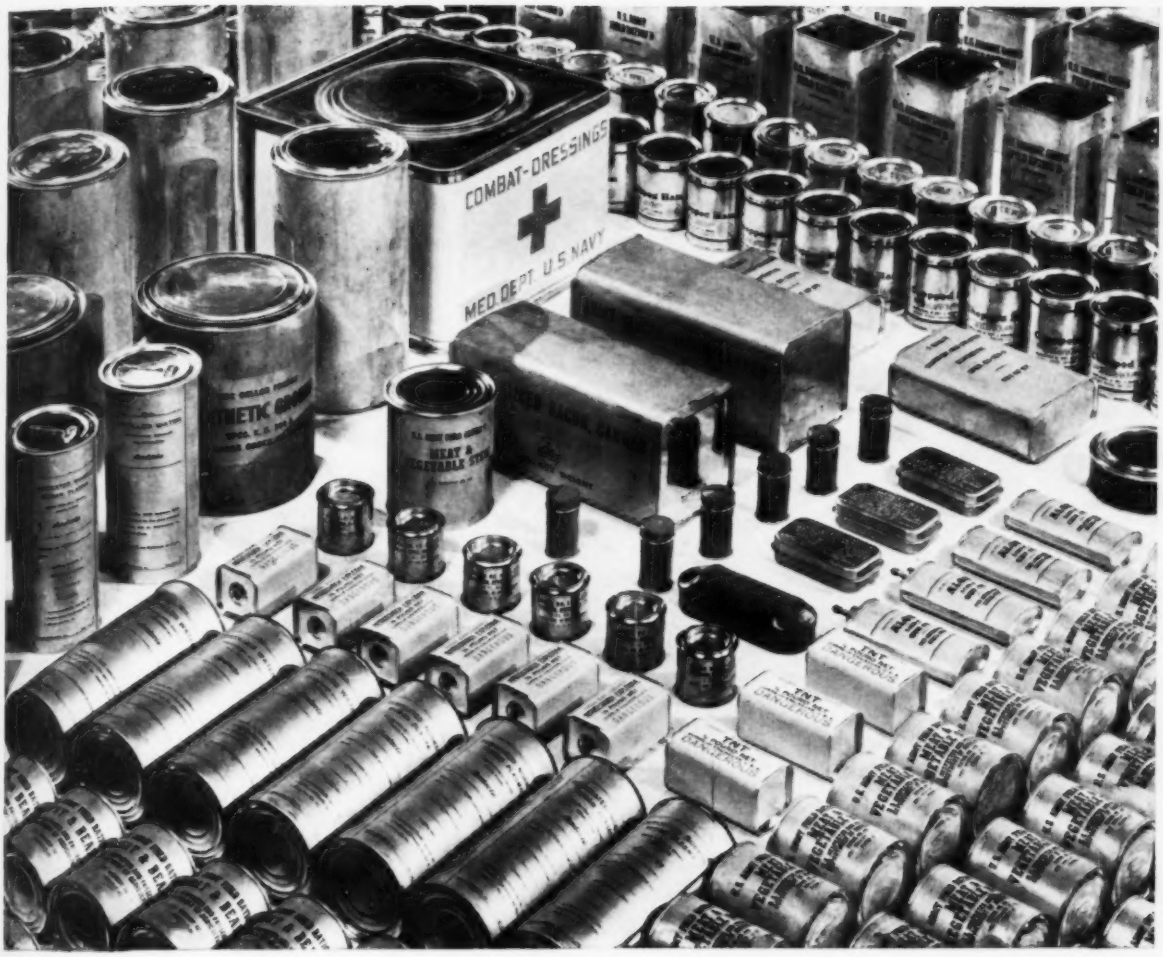
Manufacturers of AROMATIC CHEMICALS, NATURAL DERIVATIVES, PERFUME AND FLAVOR OILS
BRANCHES IN PRINCIPAL CITIES



SOME "NON-SECRET" WEAPONS THE AXIS WOULD LIKE TO HAVE

Study the Labels on the cans and packages in the picture above.

On some of them, you'll notice "Army Sliced Bacon, Canned . . . U. S. Marine Corps Field Ration D . . . U. S. Army Meat and Vegetable Hash . . . TNT Dangerous, Corps of Engineers."

There's a container for dried human blood in the picture, too. For transfusions in the field. Another to house a delicate motor on anti-aircraft guns.

And while you'll be interested to know that these articles are some of the many defense items the containers for which are made by the can-making and packaging industries, their significance goes far beyond this simple fact.

For they are weapons. "Non-secret" weapons, if you will. And every country has them. *But the Axis would like to have ours.* Do you realize why?

The industrial resources that produced these "non-secret" weapons are the largest in the world. The Axis needs those resources.

It needs the men . . . the machinery . . . the skill . . . the research that make the quality and the quantity of these weapons possible. It needs the energy of the free, unregimented economy which produced these weapons.

We Americans can congratulate ourselves that the Axis hasn't these resources . . . that we—not the Axis—have built the greatest packaging and can-making industries in the world . . . that we are now using the sinews of these industries to resist aggression. American Can Company, 230 Park Avenue, New York, N. Y.

...pretty through it all

"I am a woman, and I have two major weapons.
I have my hands. I have my heart.

"With my hands, I can work, heal, fetch and carry, place and replace; I can keep the day-by-day mechanics of living reasonably tidy and stable.

"With my heart . . . well, put it this way . . .

"I can be a good wife—Army, Navy, Air Corps, or civilian. I can raise my children, sane among all the insanity. I can run my house, and make of it a haven for my friends, not an ivory tower for me.

"I can pay incredibly stiff taxes with an equally stiff upper lip. I can accept shortages without complaining; I can face the possibilities of severe rationing without going to pieces. I can keep my head today despite all the yappings: on the one side, of buy-everything-you-can-and-hoard-it, and on the other, of is-it-really-right-to-buy-*anything*.
I can go on spending my money wisely; spending it where it will do the greatest possible good for America and for me. I can accept any reality; I can reject every rumor. I can fight. I can win.

"And I can look darn pretty right through it all."

*An Editorial, Reprinted from the January 15th issue of Vogue**

And we at Givaudan will do our utmost to aid you in preserving this courage and confidence of American women. They are playing an important part in our national morale and will look . . . pretty through it all.

We have the experience, the facilities and the will to do the job, and, within the necessary limitations of raw materials, we will do our best to meet your requirements for fine quality perfume and aromatic materials for cosmetic and soap products. Our laboratory and skilled technical cooperation are available to assist you in using available materials.

GIVAUDAN—DELAWANNA, INC.

330 WEST 42nd STREET, NEW YORK, N. Y.

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ARE YOU IN A POSITION TO HELP WIN THE WAR?

yes!

Give these questions careful consideration:

1 Supplies of burlap are dwindling. Can you save material and money by buying soda ash in paper bags?

2 Conversely, the war effort will require about 30% of our paper output. Can you purchase soda ash in box or hopper cars, unloading to be effected with mechanical or air conveyor systems?

3 Steel is the main sinew of war. A 760-lb. drum of solid caustic or a 400-lb. drum of flake caustic consumes 18 lbs. of steel. Can you buy your caustic soda for delivery in tank cars of 50% liquid caustic?

4 Scrap steel is of great value to our national economy and worth good money to you. Are you disposing of it to the best interests of our war effort?

5 Shipments of 50% liquid caustic are being made at an unparalleled rate. New tank cars are becoming difficult to secure. The equipment now on hand can be used more advantageously to carry 74% than 50% liquid caustic. Can you change to 74%?

•

Help win the war. Write the nearest Michigan Alkali office or any other conveniently located alkali manufacturer for full information and advice on changes in handling equipment.

Make your reservations now for the Drug, Chemical and Allied Trades Banquet at the Waldorf-Astoria on March 12th

MICHIGAN ALKALI COMPANY

FORD BUILDING, DETROIT, MICHIGAN

NEW YORK • CHICAGO • CINCINNATI • ST. LOUIS • CHARLOTTE • WYANDOTTE

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CALCIUM CARBONATE • CALCIUM CHLORIDE • CAUSTIC SODA • BICARBONATE OF SODA • SODA ASH • CHLORINE • DRY ICE

WITH BUT ONE PURPOSE

Our first and only job now is to win the war. The effort of every American should be directed to that accomplishment. If van Ameringen-Haebler, Inc. can best serve this purpose by the continuation of our normal business, we shall do that to the best of our ability. If we find that we can serve our country better by devoting the facilities of our plants and laboratories to defense production we are ready and eager to do so as quickly as possible.

VAN AMERINGEN-HAEBLER, INC.

315 FOURTH AVE. • NEW YORK CITY

WITH YOUR AID WE SHALL BE

VICTORIOUS

in the fight against

CANCER

● Enlist in your local unit of the Women's Field Army today. Buy package labels. You can help spread the knowledge that CANCER CAN BE CURED.

● If you live in the Metropolitan Area, address the New York City Cancer Committee, 130 East 66th Street. Package labels and the Quarterly Review will be sent you for your dollar.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER

New York, New York

BOUQUET	LILAC	VIOLET
CHYPRE	NARCISSE	WISTERIA
FOUGERE	ORIENTAL	MINT
GARDENIA	ORANGE BLOSSOM	•
JASMIN	PINE	
LAVENDER	ROSE	
LEMON	TREFLE	

DIRECTIONS

To produce an attractive Theatre Spray, best results can be obtained by using from 2 to 4 ounces of water soluble oil to 1 gallon of warm water. First, put the water soluble oil in a container, add one quart of lukewarm water and agitate thoroughly, then continue to add the balance of warm water slowly, to make one gallon.

If you cannot find the odor you desire in the above list, write us and our laboratories will develop that particular type for you.

AROMATIC PRODUCTS, Inc.

15 East 30th Street, New York — Factory: Springdale, Conn.

ATLANTA • DALLAS • MEMPHIS • PITTSBURGH • CHICAGO

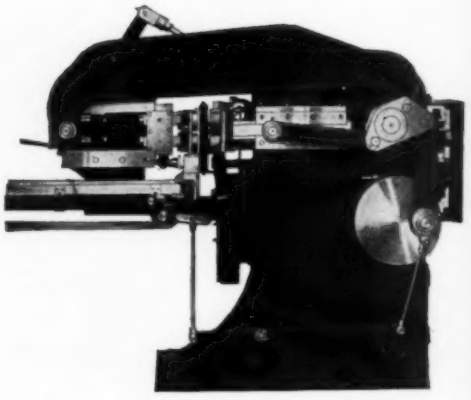
JONES

TOGGLE OPERATED

PRESSES

Save hundreds of dollars more per year than earlier models!

THEIR long toggle pressure makes the soap cohere so that particles do not stick to the dies. This makes long runs possible without stops for cleaning. Such stops on old model presses put the whole line out of production for more minutes per day than you realize without adding them up.



Type K Toggle Operated Toilet Soap Press

Again, dies which accumulate scrap, press only a few before the soap cakes begin to lose their finish and clean impression. If the dies are run too long before cleaning, many cakes will have to be remilled and pressed again. This costs money, but it costs more in loss of sales to neglect it.

Toggle Operated Presses insure higher production, prevent early depreciation, multiply by three the life of dies and conserve the nerves of workers by their noiseless, efficient operation.

Many successful soap makers are replacing old models with

JONES TOGGLE PRESSES

R. A. JONES & COMPANY, INC.

P. O. BOX 485 CINCINNATI, OHIO

AS THE EDITOR SEES IT

A WORD of encouragement to the smaller soap manufacturer comes in the latest pronouncement from the War Production Board on the glycerine recovery situation. Because of the excessive cost of recovery, and the small potential glycerine yield from their operations, "smaller manufacturers may not be required to effect a complete recovery of the glycerine in their product." Just what latitude the WPB means to give the smaller soap manufacturer on retained glycerine content will have to be clarified in a further order. Meanwhile the WPB is to be commended on the speed with which it has acted and the sensible solution which has apparently been found for this very serious problem facing an essential industry.

THE five-cent excise tax on coconut oil originating elsewhere than the Philippines may be removed shortly by Congress. But the removal of this tax now in order to facilitate the importation of coconut oil and copra from other sources such as Ceylon, Zanzibar, and East African points, is like locking the stable door after the horse has departed. American chances of obtaining coconut oil and copra from sources other than the Philippines in any tonnage of importance are, according to some market experts, not too rosy. And with Sumatra palm plantations shut off from the American market, palm kernel oil is not going to do much substituting for coconut in our soap kettles. It looks like American soapers will have to find some other way to make their soaps lather.

THE attention which soap conservation is receiving in the public prints is becoming somewhat overpowering. We are being told by writers everywhere, including two who dish up information for our Government to send to its people, that we must conserve soap. One of our advertising magazines states that soap is the next item on the list to be rationed. The radio, government publications and the newspapers are telling us how to save fats at home and how to make soap from these fats by cooking up so many pounds of fat with a cup of this and a quart of that. The general idea appears to be to convince the public that soap is scarce and is going to become scarcer.

If there is any one formula designed successfully to cause a buying stampede, it is to convince people that the product in question is becoming scarce. It never fails. A year or so ago, the then OPM brought on one of the finest little series of buying stampedes in chemical raw materials which we have witnessed in many a moon. They announced that most chemicals would become scarce for civilian industry, and promptly civilian industry broke all records in the rush to buy up everything in sight. And now, the grocery trade reports a sharp increase in demand for soap and already "sees signs of hoarding." Well, what in the name of heaven could be expected? The old in-

stinct of self-preservation always functions, war or no war, and Mrs. American Housewife is no exception. There is not going to be any material shortage of soap,—at least there are no signs of this on the horizon today,—but try and convince the average housewife of this fact after what she has been reading in the papers and magazines during the past several months.

AS the person to direct soap and glycerine affairs for the W.P.B., George Wrisley has been a fortunate choice, approved from the beginning by soapers large and small. He knows glycerine and he knows soap. His reputation assures him the full confidence of the industry, and the W.P.B. can likewise rest assured that he will secure the maximum in glycerine output for the war needs of the country. That he is receiving and will continue to receive the full support of the industry goes without saying.

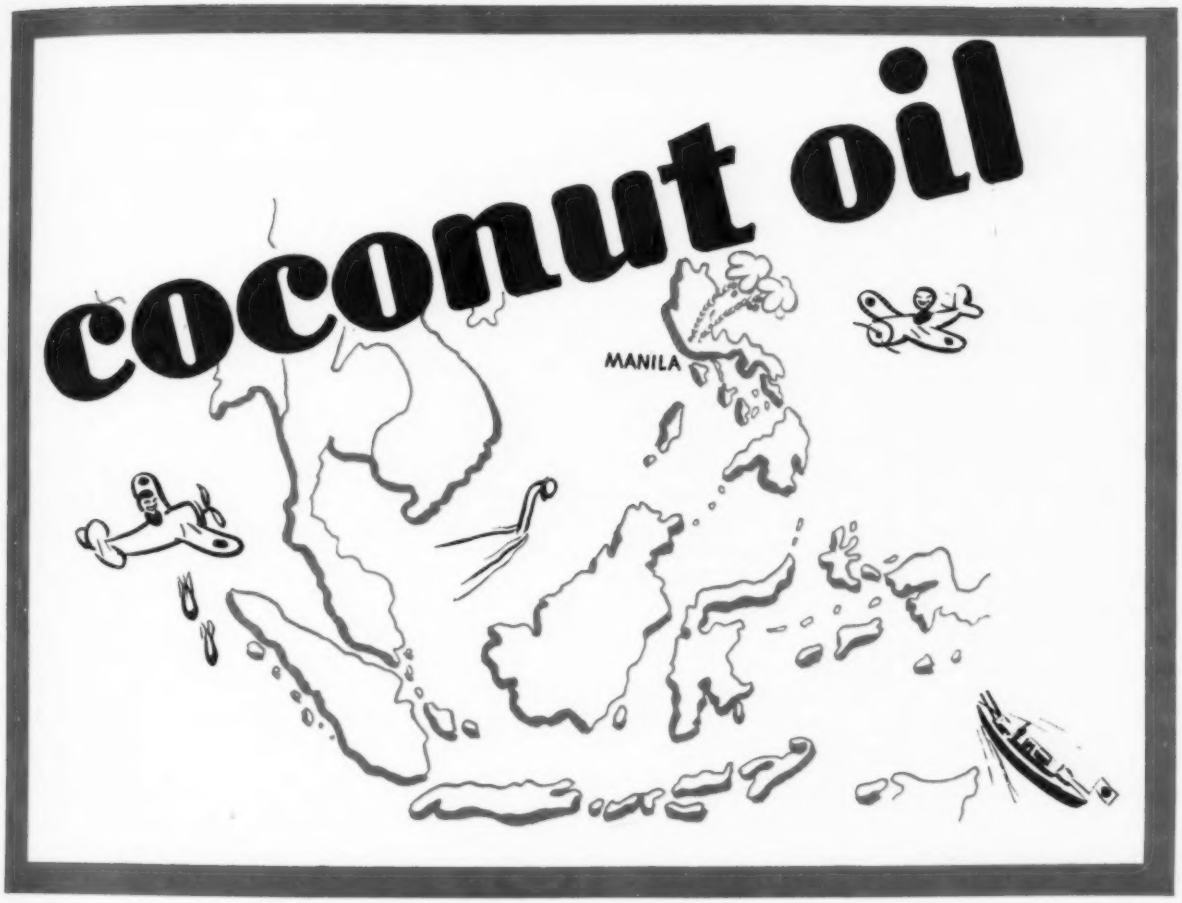
WHEN a soap product is manufactured from olive oil foots may it be labeled as containing "olive oil?" A small manufacturer of shaving cream has been complained against by the Federal Trade Commission for labeling his product "palm and olive oil" shaving cream when the product in question contains "a small percentage of olive oil foots." This, according to the F.T.C., misleads a substantial portion of the public into the mistaken belief that the product actually contains olive oil, —and constitutes misrepresentation. The Commission then goes on to tell that the first pressing of olives produces edible olive oil, and that "olives pressed the fourth successive time produce a by-product known as olive oil foots. . . . And this is distinctly a different product from olive oil."

Granted that olive foots and olive oil are different, just as any foots and the corresponding oil differ. But essentially, they are the same, the difference from the angle of soap manufacture being one of quality. The characteristics which olive foots give to a soap product are usually the same as those of a so-called pure olive oil. And instances where edible grades of olive oil have gone to the soap kettle are rare indeed, especially in this day and age.

Once more, we feel that the F.T.C. here may be accused justly of splitting hairs, of instituting a proceeding of no material benefit to the public. Unless this is a test case, the forerunner of bigger and more important actions to come, and an attempt to set up a legal precedent, it seems that the target is rather small for the Commission's big guns.

AMERICAN housewives should not make their own soap at home, but to encourage glycerine production for war needs, should continue to buy their soap as usual at the corner grocery store,—this according to a statement recently issued by the War Production Board from Washington. Behind this public declaration by the W.P.B. lie many recent newspaper and magazine articles,—evidently inspired by advice publicized from the O.P.A.,—urging housewives to make their soap at home from waste kitchen grease and thus help to conserve the soap and fat supplies of the country.

We are glad to see that the W.P.B. which is doing everything in its power to boost the output of glycerine in American soap plants, came out promptly with a statement countermanding the previous ill-advised recommendations of the O.P.A. And this reminds us that what Washington, D. C. could use right now is a good strict censor for all sorts of so-called news releases from government departments. With such in operation, the original "make your own soap at home" story would never have reached the newspapers.



OF paramount importance to the American soap industry today is the problem of obtaining sufficient quantities of coconut oil, or materials which are able to replace coconut oil as a quick-lathering soap stock. Actually, upon analysis, the problem boils down to a need for lauric acid, for which in soap making no real substitute has ever been discovered. In normal times more than 90 per cent of the industry's lauric acid requirements are supplied by Philippine coconut oil, the remainder being supplied by palm-kernel oil, and in recent years, by limited imports of babassu oil. Philippine coconut oil accounts for approximately one-fourth of the total quantity of oil and fats which go into the soap kettle in the United States every year. Incidentally, about one-third of the nation's glycerine yield is derived from this source. Thus, when Japanese forces in January took over an immense section of the Philippines, America's only really important source of laurin was removed as effectively as if it had been blasted off the map.

Factory and warehouse stocks of coconut oil in the United States, on December 31, just prior to the fall of Manila, were considerably smaller than a year earlier despite the rising import trend reported in the third quarter, and the heavy movement believed to have taken place during the latter months of 1941. Stocks amounted to only 89,000 tons as contrasted with 121,000 tons on December 31, 1940. Refined stocks at 8,000 tons were a little higher than a year earlier. Crude babassu oil stocks were 6,000 tons on the last day of 1941, as compared with 3,500 tons on the last day of 1940, while crude palm-kernel oil stocks were only 500 tons at the end of the year, a slightly lower figure than that of December 31, 1940.

Finding replacements for Philippine Coconut Oil—the Soaper's most important raw material, now lost to him thru Japanese successes in the East Indies—is one of the most serious problems facing the American soap industry today....

The stock position on these oils, then, cannot give the industry any real feeling of security.

What has happened in the Philippines has brought home to the entire industry that only two courses remain to be followed: eventually to do without lauric type oils altogether; or to waste no time in developing new sources for lauric acid or replacement materials. The development of new sources is unfortunately beset with many barriers and obstacles, most of which are a direct result of the war. The American soap industry uses annually, in round figures, 250,000 tons of soap stocks of the coconut oil type, but probably could manage satisfactorily with a lesser quantity, say 200,000 tons. This is the equivalent of 90,000 tons of lauric acid glyceride. Where can this quantity be found, now that the Philippines have been shut out of the picture?

Copra is produced in many areas other than the Philippines, of course, and in sizeable quantities. But as far as importation of the material into the United States is concerned, these other sources might as well not have existed in recent years, for in this case, the United States has had all its eggs in one basket. The added 2c per pound excise differential on oil from copra originating other than in the Philippines has effectively shut off these other sources, which might have helped to build up our stock pile. Most of these other copra producing areas are now cut off from commerce by their geographical location in the war area: Malaya, Sumatra, the other Dutch East Indies, and those South Sea Islands which lie close to the theatre of war. But other areas are still open to world commerce. Ceylon, the eastern South Sea Islands, and Zanzibar in East Africa, seem the most likely sources for copra in the world today. These areas are still producing copra, and are open to shipping. The chief problem is to arrange for shipping the copra from the producing regions to the United States. And a problem of similar magnitude is a result of the oil and fat price ceiling. Importers are unable to purchase copra or coconut oil in the producing regions except at levels which would bring the selling price in the United States to above the legal ceiling. Buyers are more than willing to pay higher than ceiling prices in the current market, but are prevented from doing so by the Office of Price Administration.

It is hoped that both transportation and price problems will be ironed out before long. How effectively this is done may depend almost entirely on the severity of the glycerine shortage. But for the present, perhaps a brief summary of the supply situations in the open copra-producing areas might be in order.

IN a typical year, the production of Ceylon amounts to about 80,000 tons of copra, equivalent to 50,000 tons of coconut oil, or 23,000 tons of lauric acid glyceride. Offerings of copra from Ceylon have been made in the United States recently, importers have reported, but apparently transportation and price problems have prevented the shipping of material so far. India also produces copra in commercial quantities, but a large percentage of its production never enters world trade, most of it being used locally.

East African possessions of European countries are capable of producing some 50,000 tons of copra per year, the equivalent of 31,000 tons of oil or 14,000 tons of lauric acid glyceride. Copra from these countries has not normally found a market in the United States, because of the excise tax differential which favors the Philippine product. A bill to do away with the excise tax differential has just been introduced into Congress and early passage is predicted for it.

Even if the price ceiling on coconut oil were high enough so that it would be economically possible to import copra, transportation problems would still loom large in the picture. Copra is a bulky material. Shipping space is at a premium and, under the control of the U. S. Maritime Commission, is requisitioned for the most important strategic materials needed in the national war program. Thus, unless the importation of copra from Asia or Africa is encouraged by the government as a source of glycerine, other materials are apt to take precedence as cargo.

General imports order M-63, which was issued by the OPM before it was succeeded by the WPB, is supposed to have the effect of encouraging the importation of the materials it includes—and copra, coconut oil and palm oil are covered by it. It remains to be seen, however, whether M-63 will have this effect, since the price ceiling has, thus far, had a compensating counter effect.

The South Sea Islands represent a source of coconut oil the size of which is difficult to calculate, as no accurate statistics on their total production capacity are in existence. However, various estimates have placed the annual production of the South Sea Islands at from 75,000 tons to 125,000 tons of copra. Using an average figure of 100,000 tons per year, the islands might be regarded as a possible source of some 63,000 tons of coconut oil, equivalent to 28,000 tons of lauric acid glyceride. The western islands, which lie close to the war area, probably may be eliminated as possible sources of coconut oil, but the eastern islands, such as the Society Islands, the Marquesas, the Samoan group, and even the Fiji Islands might well supply the United States with valuable quantities of copra. Ships bound for the United States from Australia burn up a quantity of fuel before arriving at these islands, and can load copra in its place at a number of island ports along the route.

The copra from the South Sea Islands formerly found markets in Europe, England, Canada, Australia, Mexico and South America. Probably now, because of the disruption of shipping, quantities of copra are lying unconsigned at shipping points. Normal trade routes between the United States and the

South Sea Islands do not exist, and for new trade routes to be established authorization must be obtained from the Maritime Commission.

While the copra producing areas mentioned above are the principal ones still operating, other areas produce small quantities, which, if they could be brought into the United States, would assist in filling the need for lauric acid. The present problem apparently can be best solved by marshalling as much natural lauric acid type materials from as many different sources as possible. The amounts obtainable from any one source may of necessity be small, but in the aggregate it may be possible to obtain an amount equivalent to that *temporarily* lost in the Philippines.

South and Central America have a small copra production which may help swell the total available to American soap manufacturers. The copra produced by South America, however, has in the past been used mainly for making desiccated coconut meat for edible purposes. Mexico is capable of supplying the United States with several thousand tons of copra and her production could be stepped up if encouragement were forthcoming. Naturally copra production is possible only where stands of palms already exist in a bearing state. Production cannot be expanded overnight or even in a year or two since it takes a tree six or seven years to come into commercially valuable fruit and ten to twelve years before it has reached a normal producing rate.

PALM-KERNELS may yet be the salvation of the American soap industry in the present emergency, if arrangements with the British can be made and facilities for shipping the material from the British West African possessions can be secured. The normal palm-kernel production of British West Africa which annually goes into world trade is 420,000 tons of palm-kernels, equivalent to 190,000 tons of oil or 95,000 tons of lauric acid glyceride. French West Africa produces about 145,000 tons of kernels, equivalent to 65,000 tons of oil or 32,000 tons of lauric acid glyceride, while other West African possessions produce about 80,000 tons of kernels annually—the equivalent of 36,000 tons of oil, or 18,000 tons of lauric acid glyceride.

IN PLACE OF COCONUT OIL

Practical suggestions for the soap maker on replacement materials to be used and methods to be followed so as to retain the properties of coconut oil in his products will be covered in an article on the subject in our April issue, written by C. R. Kemp, co-author of Modern Soap Making.

Virtually no palm-kernels or palm-kernel oil have been coming to the United States in recent years, but there is reason for hope that, in the present situation, ways and means may be worked out for bringing a sizeable percentage of West Africa's palm-kernel production to the United States. Progress in this direction should be stimulated by the need for glycerine.

Likewise Brazilian babassu oil offers a partial solution to the problem of coconut oil replacements. Brazil's production is limited by natural obstacles (see *Soap*, August, 1941) but if shipping space is available, at least 20,000 tons of oil, the amount used in soap making in 1940, and the equivalent of 9,000 tons of lauric acid glyceride, could be counted upon. The United States is the logical market for babassu kernels in today's picture—but again shipping and price are the main obstacles. Very little babassu came into U. S. ports in 1941, apparently, but the War Production Board, according to a recent report, is seeking to remedy this situation to help forestall a glycerine shortage.

Babassu oil is now quoted at about 2 cents above the ceiling price. Thus, trading in this material, as in other coconut oil substitutes, is currently at a standstill. In the case of the less well known substitutes, ceiling prices are not well defined, however. Materials such as cohune oil, which is produced in small quantities in Mexico, Guatemala and British and Spanish Honduras, and murumuru oil which is produced in Brazil, while they are small tonnage items, are now exciting interest as coconut oil substitutes and may well play a part in the present situation.

The imported materials, then, do exist in large amounts in producing areas as yet unaffected directly by the war—but it will take official action, obviously, before American soapers will be benefitted.

A note of encouragement may be found in the fact that the U. S. Government is sending field parties of vegetable oil experts to Brazil to look into ways of increasing the collection of babassu nuts, at the request of the Brazilian government, and to make recommendations. The commission is scheduled to leave for Brazil on March 7th. The following have been asked to serve on the commission: Mr. John B. Gordon, secretary of the bureau of raw materials for American vegetable oils and fats industries; Dr. George S. Jamieson, of the fats and wax bureau, U. S. Department of Agriculture; Mr. Charles E. Lund, oils and fats specialist, of the Bureau of Foreign and Domestic Commerce; and Dr. James R. Mood, economist, of the U. S. Tariff Commission.

A similar investigation of the resources of the South Sea Islands would undoubtedly also prove to be a worthwhile move on the part of the U. S. Government and associations in the oil, fat and soap industries.

PENDING the time when coconut oil or natural coconut oil replacements are again available in useful quantities, many American soap companies are experimenting with certain of the domestic oils in a search for products having some of the properties of the lauric acid type

oils. These investigations are taking place along a number of different lines and some of them seem likely to bear fruit.

Hydrogenation of domestic oils, notably soybean oil, in an effort to produce for blending purposes an oil which will give some of the properties of lauric acid type oil is an important line of investigation. At the present writing, however, the problem is still in an early stage of development, and while soapers are daily expecting more satisfactory results, nothing of real value has yet been made public. To date, the hydrogenated soybean oil with the most encouraging properties has the following physical characteristics: iodine number, 75 to 85; saponification number, 192 to 196; congealing point, 75° to 91° F.; melting point, 97° to 125° F.

While hydrogenation of domestic vegetable oils might eventually yield a product capable of giving some of the properties of coconut oil, lauric acid glyceride itself cannot be obtained by hydrogenation unless splitting of carbon chains also takes place. For example, soybean oil consists mainly (86%) of glycerides of unsaturated acids containing 18 carbon atoms: linoleic, oleic, and linolenic acids. Thus, when it is hydrogenated the final product also contains 18 carbon atoms, whereas lauric acid contains 12 carbon atoms, and its closest neighbor in the natural saturated fatty acid series, myristic acid, contains 14 carbon atoms. The quick-lathering properties and high solubility of sodium laurate are shared to some extent by sodium myristate. But as the carbon chain lengthens to 16 and 18 carbon atoms, the above mentioned desirable qualities of the sodium salts are almost completely lost.

When soybean oil is hydrogenated, the principal reaction that occurs is the conversion of the linoleic acid glyceride, the major constituent, into olein, the glyceride of oleic acid; then, if hydrogenation is continued, the olein is converted into stearin. By ordinary hydrogenation, then, lauric or myristic acid glycerides cannot be obtained from soybean oil, or from any other domestic oil.

The preparation of laurin through hydrogenation would be a simple matter if there were available quantities of oil containing a good percentage of glycerides of unsaturated fatty acids having 12 carbon atoms—but unfortunately glycerides of fatty acids having 12 carbon atoms are comparatively rare in nature. They occur in only a few natural materials and then only in small percentages—as in sperm head oil which contains about 6 per cent of lauroleic acid glyceride and from 16 to 20 per cent of lauric acid. Myristoleic acid glyceride is also quite rare in nature.

What of the synthetic production of lauric acid? Numerous ideas and processes for the production of synthetic fatty acids have been suggested and have even been used commercially in certain peculiar circumstances—but apparently none offers a remedy in the present situation. When fatty acids are produced from products such as natural or synthetic paraffins, the yield of any specific fatty acid is small—a wide range of types of fatty acids being produced, and generally no one fatty acid is present in the final product to the extent of more than 10 to 12 per cent. Also, even if lauric acid could be produced in commercial quantities by these methods, it would be impractical, as the need for lauric acid is probably less acute than the need for the materials from which it might be made. The cost would undoubtedly be excessive in the present set-up. This also applies to schemes for the synthesis of lauric acid from gaseous or light petroleum products.

There is, however, a synthetic lauric acid of low titre on the market, described by its manufacturers as "available in abundant quantities at low cost." This material, it is said, has an acid number of 324, a saponification number of 366, percentage unsaponifiable of 0.2, and Lovibond color of 6.6 red and 29 yellow. To date, it has found its main use in the mining industry for ore flotation, but its use in soap making should be thoroughly investigated. We have an idea the term "abundant quantities" might turn out to be a somewhat optimistic prediction.

A FEW soap manufacturers are currently experimenting with commercially produced myristic acid as a possible coconut oil replacement, but so far they have reported that no really gratifying results have been obtained. Myristic acid, furthermore, is available in only small quantities, comparatively speaking, as the raw material from which it is prepared is not plentiful. One product available on the market contains about 60 per cent of myristic acid, while another has a content between 90 and 95 per cent. In making up a soap stock, the commercial myristic acid is used to the extent of about 15 per cent in a blend with a lower titre fatty acid. Blending agents that have been experimented with are oleic acid of vegetable origin, soybean oil, and a split soybean oil, among others.

Use of percentages of potash in the caustic soda lye where a toilet soap is being made has been suggested frequently as a possible method of conserving coconut oil stocks. Some 3 to 5 per cent of potash in the soda lye is said to increase the lathering and rinsing properties of the soap enough so that appreciable savings can be made in the use of coconut oil. Just what the maximum limit might be on addition of potash to offset reductions in the use of coconut oil, could best be determined by further experimentation. Possibly more than 5 per cent potash in the soda lye might be used in the manufacture of toilet soaps, providing the proper blends of soap stocks are employed.

The use of a small percentage of water white rosin to offset losses in lathering qualities and solubility through reduction in the percentage of coconut oil in toilet soaps has also been suggested. The rosin is said to act as a rancidity preventive, and to give fairly good lathering characteristics.

(*Turn to Page 67*)

JAVA CITRONELLA OIL

PART II

By Dr. Ernest Guenther

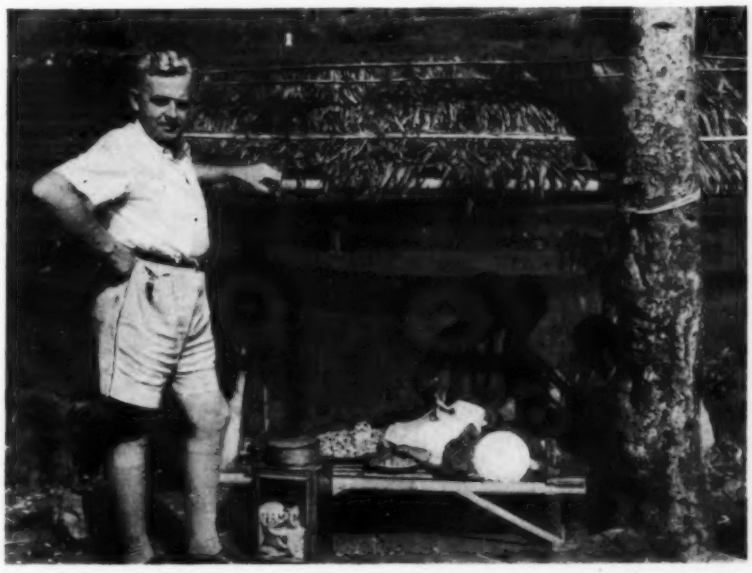
FRITZSCHE BROTHERS, INC.

GRASS grown on estates for citronella oil production is of about the same quality as that grown by natives, containing approximately the same percentage of oil. Some claim that the yield per acre from estate grass is, on the average, better, but that is quite exceptional. It is difficult to form a correct picture in regard to the quantity of grass produced on estates as compared with that grown on native-owned lots because, while it is possible to calculate the extent of estate plantings, one cannot estimate the numerous tiny grass plots which are owned by native growers. According to Hischmann's analysis of the government statistics,[9] only about 20 per cent of the sereh grass is today produced on large plantations, the rest by small, native growers, some of whom do not distill their grass but sell it to the numerous distilleries. The average oil content is 0.6 per cent which means that, according to the 1935 statistics, 276,000,000 kilos of grass were required to distill the oil produced that year.

When purchasing grass, the distillers base their estimates on a yield of one pound of oil per 150 pounds of sereh grass. Here, of course, moisture content must be considered, the grass being quite wet during the rainy season. All the oil not declared by the estates must go to the account of grass grown by natives because there exists no third party. As Hischmann[10] concluded from the statistics, 7,587 hectares of estate grass yielded only 343 tons of oil or 45 kilos per hectare, and 14,608 hectares of native grown grass yielded 1,175 tons of oil or 80 kilos per hectare per year. The present yield of 45 kilos yearly per hectare is certainly much lower than the yield of flourishing estate plantings on normal soil and with young grass. It shows clearly how low prices brought ruin to the normal operations of estates during 1932 to 1936. Compared with former estate yields, 80 kilos from native-grown grass is not abnormally high. The statistics published on estate areas prove that nearly one-half of the total estate area consists of fields at least four years old which, in turn, shows that half of this acreage has passed the peak of normal grass production.

There exist no data on the age of the native plantings, but it is generally known that the natives plow under a sereh field as soon as the yield of grass declines considerably, while the estates usually start a grass field carefully in order to secure a longer life span. For this reason the peasants generally have younger fields and obtain a better average yield. During the years preceding the present war, the estates could not renew their sereh fields to the same extent as formerly and could not spend much for the upkeep of their existing fields. They suffered much from the low price of the oil and this was reflected in the yield. Young fields, even though not as well kept as old ones, have a much larger grass production. This very fact partially explains the discrepancy in the production figures, the other factor being

The author on recent visit to Java



that the published areas for peasant grass have always been much smaller than the actual ones. At present the basis for estimates is even more complicated, but the fact remains that the natives uproot their grass field when it seems advisable much more quickly than estates would or could, in order to change to other more remunerative crops.

In 1937 almost 24,000 hectares of citronella grass were under cultivation, mostly in western Java, especially Priangan. The estates distill the grass in their own distilleries, and there were almost 100 such distilleries, about 12 of them buying the grass from native growers. Furthermore, there existed in that year almost 80 native sereh oil distilleries, all small and nearly all located in Priangan. In addition, there is a native home industry in which small and rather primitive stills are used.

Sereh grass is usually harvested in the early morning and then dried on floors outside of the factories. This process takes only three to four hours in bright sunlight but, of course, much longer during the rainy season. While drying, the grass must be turned over occasionally to prevent fermentation. Careful short drying of the grass is said to benefit the quality while long drying, especially in the rain, is harmful. It is claimed that the grass should not be exposed for any length of time to sun or rain, and that it should be worked up the same day that it is harvested. If this cannot be done, it should be dried inside the factory or under sheds or on platforms near the boiler.

The distillers usually prefer to distill dried grass because they can charge more into a still and also because distilling the dry grass involves lower steam pressure and less fuel consumption. During periods of continued rain the grass would have to be distilled in a wet condition and, for this reason, most distillers today stop operating in such weather. It would be advisable to eliminate weeds from the true sereh grass during the drying process, but when oil prices are low few distillers can afford this luxury. Many distillers do not bother to chop the grass into short pieces before distillation. They seem to forget that the charge of non-chopped grass per kettle is much smaller and that, because it cannot be distributed so evenly in the still, steam channel formation and lowered yield result. Chopping the grass increases the economy of a still.

Exterior View of a Java Citronella Distillery on One of the Large Estates

The faster steam passes through the grass, the lower is the oil percentage per kilo of condensed steam, but the time required for distillation is shorter. If, on the other hand, the steam passes slowly through the grass, the time of distillation is longer and the hourly yield of oil per kettle lower. As pointed out previously, most distillers today rely upon distilled and exhausted grass as fuel, wood being cheap enough for use only in a few localities.

Distillation starts rapidly and decreases gradually after about two-thirds of the oil has been distilled. The average yield of oil is about 0.7 per cent; it fluctuates from 0.5 per cent in the rainy season to 1.2 per cent in the dry season. A still charged with 1500 kilos of dried, chopped grass of good quality yields about 12.5 kilos of oil. If a high content of total geraniol and citronellal cannot be obtained in a certain locality with plants raised from good stock, other factors such as soil, climate, season, and age of the plants must be blamed.

From all the above statements it would appear that the native distillers who raise their own grass should be able to produce a better grade of oil than the large-scale distillers who buy their grass from numerous native growers. In the latter case the distillers cannot be very selective because the competition for grass is keen and the native planters usually play one distiller against another. However, the small native growers do not always distill the best oils because their grass is often contaminated with weeds or is cut too young or too old. In order to obtain a maximum yield of oil at a very low cost of steam, the small distillers often dry the grass in the sun too long previous to distillation and extend the time of distillation until all the fuel is exhausted which, of course, gives an inferior oil with an abnormally low geraniol and citronellal content.

Distillation of Sereh Grass

THREE types of sereh stills are employed in Java, direct fire stills and steam stills, with the so-called "godokkans" standing between.

A. Distilling with Water *and* Steam

The advantage which this process has over direct steam distillation is that the danger of steam channel formation in stills is dimin-

ished. The vapor develops along the entire water surface and consequently penetrates the charge of grass more evenly.

This process is used by the native population in general. During the early years of citronella oil production in Java, distillation was carried out exclusively with direct steam, but after 1910, when the natives entered the industry, the process of water *and* steam distillation was introduced because apparatus for it was considerably less costly and the process itself less complicated. The upkeep of these stills is cheaper, as is their operation in general; furthermore such stills are not subject to the rules of the Java government applying to steam boilers.

These water *and* steam stills are imbedded into stone hearths and are provided with a grid on which the grass rests. The water beneath the grid is heated with direct fire. One manhole on top and one on the side permit charging and discharging of the plant material. The grass is tramped into the still quite firmly in order to prevent steam channel formation; its volume diminishes greatly during distillation. Between the still walls and the grass, cooling and consequently more condensation takes place than inside of the grass mass. This condensation water containing black, non-volatile extraction materials collects in the bottom of the still. Evaporation of this water and decomposition of these materials must be avoided because the oil would be spoiled by the absorption of foreign odors. It is advisable, therefore, to renew the water in the still after finishing each batch.

The proportions of a still diameter to its height should be at least 1 to 1.5 or 2. Steam channels form more readily in low, wide stills than in narrow and high ones, but that danger is remedied if the low, wide still tapers conically toward the top. Such stills, although vastly superior, are not yet being used very much in Java. It is advisable to insulate the stills with a layer of kieselguhr or other material; even finely chopped sereh grass can be used. A still of 1.10 meters diameter and 2.40 meters height can hold 8 to 9 picols (1 picol equals 136 pounds) of grass which is quite sufficient for one charge.

The steam should rise through the grass with sufficient force to penetrate all parts of the charge evenly; otherwise, complete distillation will not take place. On the other hand, if too forced, the formation of steam channels is liable to result. In general, the steam pressure in the stills should not be too high,—first because most stills are not constructed for high steam pressure. Furthermore, the oil is apt to be decomposed through higher temperatures as well as through too long contact of the odoriferous principles with steam.

Distillation by water *and* steam requires a separate fire for each kettle. Thus, the fuel consumption is greater than for the heating of one separate steam boiler which might supply steam for a whole battery of stills. Distillation with direct fire can thus be recommended only if the quantity of grass to be worked up daily is small and the price of fuel low, as is the case with exhausted sereh grass. Operating a still holding 8 picols of grass with water *and* steam requires three to four hours which is twice as long as would be required for direct steam distillation. Distilling grass with water *and* steam in very large kettles where the steam must go a long way to penetrate the entire grass mass gives no better a yield than distilling with direct steam.

B. Distilling in Godokkans

The so-called godokkan represents a modified version of water *and* steam distillation. This type of installation is usually owned by wealthier natives or Chinese, and its advantage lies in preventing the grass from burning as sometimes occurs with direct fire distillation. The fire hearth and the water boiler are separated from the actual still. The capacity of godokkans varies from 400 to 4000 kilos of grass. Stills holding more than 1500 kilos of grass are less economical, the most suitable ones holding 1000 to 1200 kilos of sereh. Small stills require a shorter distillation time. It has been the practice to distill a charge of 1000 to 1200 kilos for five or six hours. This is really too long, the most favorable duration being three to four hours. After the rapid separation of a few rather unimportant volatile aldehydes, citronellal and geraniol distill over. The yield of total geraniol diminishes after a few hours and then only the less desired compounds, such as sesquiterpene alco-

Native Distillery for Java Citronella Oil. The Condensers for the Still Are Immersed in the Water Basin

hols, come over. Under normal and favorable conditions, the composition of the oil after four and one-half hours of distilling is just slightly above the limit of Contract "A" which specifies 85 per cent total geraniol and 35 per cent citronellal. Evidently, then, distilling from five to six hours under unfavorable conditions would result in an oil which does not meet these requirements. In distilling citronella oil the most important feature is to maintain uniform temperature and steam pressure which should not drop during the process.

C. Distilling with Direct Steam

De Jong and Hofstede spoke primarily of steam distillation because in their times the cultivation of sereh was carried out chiefly by the large estates which distilled the grass exclusively in steam stills. When the natives started cultivating and distilling, they used mainly water *and* steam stills, with the result that today the number of the latter exceeds that of the former. In the case of direct steam distillation, the steam is generated in a separate boiler heated by wood or exhausted sereh grass. The grass kettle resembles that of water *and* steam stills.

The question of steam pressure is still open to discussion. In former days it was believed that a high steam pressure would give best results. De Jong, for instance, recommended a pressure of 3 to 4 atmospheres, but later the opinion gained ground that such high pressure, while giving a greater yield, affected the quality of the oil adversely. Hofstede proved by experiments that the higher yield was accompanied by a lower quality. His tests showed clearly that raising the steam pressure increased the yield but lowered the precentage of geraniol and citronellal. Instead of steam pressures from 3 to 4 atmospheres, pressures of 1 to 2 atmospheres were then recommended, and after Hofstede, the distillers went even further and advocated pressures from one-half to one atmosphere. The loss in yield is more than compensated by a high total geraniol percentage. Yet, even today some producers prefer a larger yield to higher quality and, therefore, apply a higher pressure or extend the duration of distillation.

By distilling long enough, all the oil in the plant comes over but such oil contains also the less desirable constituents. Experimenting in Celebes, De Graaf carried out a distillation for only two hours. Distilling with a pressure of 4 atmospheres and cutting his fractions every ten minutes, he found that with the third fraction three-quarters of the total yield had already been obtained. After 36 minutes, the oil fraction contained less than 85 per cent of total geraniol. If the grass worked up by De Graaf had not been of such excellent quality, the limit of 85 per cent total geraniol would have been passed much sooner. Thus, the opinion gained ground that an oil of good quality can be obtained only by low steam pressure and by short duration of the distilling process. At present stills holding 1000 to 1200 kilos of grass are heated with direct steam of ½ to 1 atmosphere throughout the distillation period which is not longer than three hours. These figures, of course, vary according to circumstances.

The stout defense against the invading Japanese armies which the Javanese Dutch are putting up as these pages are being prepared for publication lends increased interest to this account of citronella oil production in Java. Whether American users are going to be able to get supplies of Java citronella oil next year—and the year after—whether the plantations will be ravaged in a "scorched earth" policy—whether there will be such a Javanese industry after the war is over — are questions now being decided.

The expense of operating a steam still is considerably higher than that of water *and* steam distillation. As long as they receive good prices for their oil, the native producers are not interested in a high yield. This makes their competition very keen, and some of the estates were forced to follow their example and replace the direct steam stills with water *and* steam stills in order that they might produce good oils as economically as possible and so rival the natives. Native oil originating from some of the Priangan districts has been and still is of very good quality. Provided the natives raise good grass, their oils need not be inferior to the best estate oils because some of the estate producers make the mistake of stressing too much the yield instead of the quality. Furthermore, the oil obtained by direct steam distillation is frequently cloudy and must be stored, previous to shipment, in a drum containing taps at various heights through which the purified oil can be drawn off in drums or tins.

D. Revolving Stills

Revolving steam stills are not indispensable for citronella oil distillation but, of course, offer the advantages of emptying quickly and saving labor. However, their installation is considerably more costly than that of non-revolving kettles, and the sereh oil distilleries of Java, because of sharp competition with the small operators, can hardly afford them.

Cost of Grass and Oil

DURING the writer's stay in Java toward the end of 1938, grass prices were fl. 0.40 to fl. 0.45 per 100 kilos. It was then claimed that the grass prices should be about fl. 0.60 per 100 kilos as paid to the native growers. The oil prices at that time were about fl. 0.80 per kilo on the spot of production and in Batavia about fl. 1. According to the exporters, they should have been fl. 1.30 to fl. 1.40 in Batavia in order to encourage growers to properly cultivate their fields and, in general, to keep the industry on a healthy basis.

Citronellal Content of Java Oil

THE chief merit of the Java type of citronella oil lies undoubtedly in its high citronellal content. In order to understand the problem of varying citronellal content, it is necessary to realize that the distillation of citronella oil from the grass is, in fact, a fractionation; in other

(*Turn to Page* 69)

Detergency Measurement

By James C. Gould and C. W. Selheimer

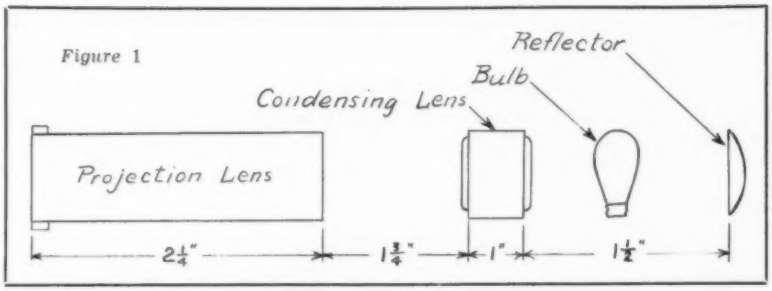
WAYNE UNIVERSITY, DETROIT

SOAP manufacturers and laundry operators, faced with the problem of checking the efficiency of detergent materials or washing operations, are finding the photoelectric reflectometer an increasingly important and helpful piece of laboratory equipment for work of this type. A means of determining objectively the degree of cleanliness or whiteness of washed clothes is essential if the laundry operator is to have any workable basis for comparison of washing materials and methods. The soapmaker too, can make effective use of such test results, to aid him in maintaining superior washing characteristics and to back up claims of detergent efficiency. Wider use of reflectometers by smaller soap manufacturers has in the past been limited by the relatively high cost of such equipment.

The simple, portable laboratory-size reflectometer described will no doubt be of interest to many soap makers. The principle upon which the instrument works is as follows: a standard light bulb is adjusted to a standard intensity, the light is projected upon a piece of cloth from which it is reflected into a photoelectric cell. The cell transforms the light energy into electrical energy and registers the strength of the current upon a milliammeter with suitable amplifying apparatus.

The equipment is housed in a wooden box with a side panel on an angle of 45 degrees. This panel is used to place samples in the light beam. A small embroidery hoop is used to secure the samples in place. The inner hoop is part of the panel and the outer hoop is free to clamp over the sample and hold it taut.

Figure 1



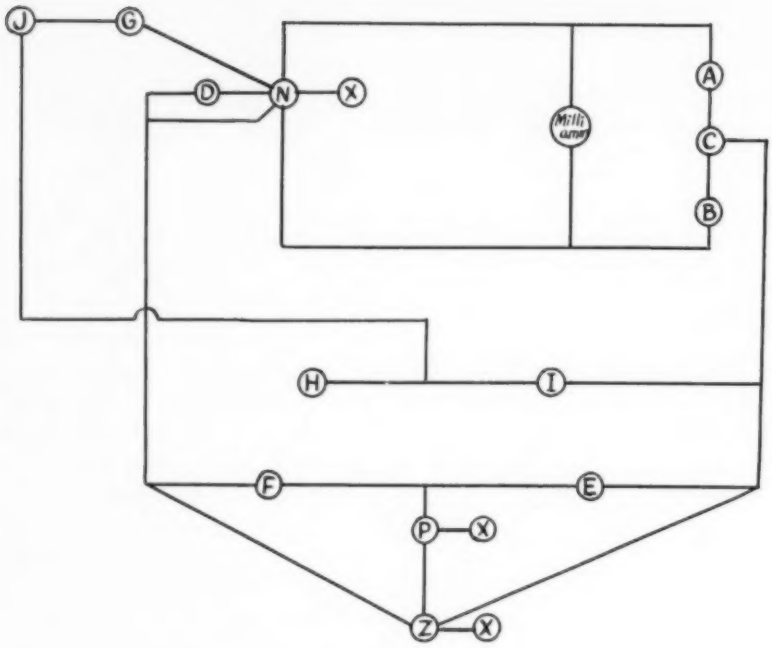
Over this is placed a hinged lid covered with standard black felt to exclude any outside light. The box is 19" long, 12" high, and 10" wide. The 45 degree angle "work" panel is 8" by 10" and the sample hoop secured to its surface with plastic wood is 4" in diameter.

The inside of the box is divided into two compartments connected only by the "light tube." This tube is made up of two 6" pieces of copper tubing, 2" inside diameter, brazed together at an angle of 90 degrees and painted dull black inside and outside. Through this tube the focused light passes from the upper light compartment, striking the cloth at an angle of 45 degrees and is reflected down into the lower compartment to be amplified and measured.

The upper light compartment which houses the light source is fitted at the edges with black sponge rubber to insure no leakage of light to the light sensitive equipment below. All wood joints of box are filled with plastic wood and all surfaces painted a dull black to minimize light leakage and reflection.

The light source is a 50 candle power Mazda No. 1193 auto head-

Construction and operation of a low-cost, laboratory size reflectometer, designed to measure the degree of whiteness of standard launderometer samples of cloth, is described. The machine should have considerable interest for many soap manufacturers, particularly those having use for an inexpensive portable instrument of this type. The apparatus was developed in connection with a research project on the testing of soaps. Suggestions for design were contributed by P. W. Soderburg of J. B. Ford Co., Wyandotte, Michigan. Dr. J. W. Bodman, Director of Research for Lever Bros. Co. aided by supplying data and cloth samples. Mr. Gould is a chemical engineering student at Wayne University, Detroit, where C. W. Selheimer is assistant professor of chemical engineering.



SCHEMATIC DIAGRAM OF WIRING & PARTS

Figure 3

A & B	5000 Ohm Resistors	J	Phototube
D	500 Ohm Resistors	X	Osborne Transformer
H & I	50000 Ohm Resistors	P	110 V Motor Plug
G	10 Megohm Resistor	C	1000 Ohm Voltage Divider (Tubes in octal sockets) (Milliammeter not included in list of parts)
E & F	Dry Electrolytic Co d.		
N	6N7 Tube		
Z	25Z5 Tube		

lamp bulb or its equivalent. Two binding posts on the outside of the box are wired to supply current to it. The rheostat to control bulb voltage is located outside the box. The light is focused by means of a condensing lens assembly taken from an Eastman Model C Kodascope motion picture projector, as shown in Figure 1.

The lower compartment contains the photo tube (General Electric P.J. 22 or R.C.A. 929), amplifier, and rectifier. The rectifier requires a 110 Volt input for which a Triplett Milliammeter (or its equivalent) is plugged into two posts provided on the side of the box. This equipment is shown in Figure 2.

Testing Samples

With the instrument dark and the rectifier on, the milliammeter reading is adjusted to zero by the voltage divider (part C in the amplifying apparatus). The light source current is then turned on and the magnesia block is placed on the cloth testing aperture. By adjusting the light source with an outside rheostat the light intensity is brought to the 100 reading on the milliammeter scale. The setting is checked against the magnesia block after each reading to insure accuracy and to check any drift of voltage to the light source.

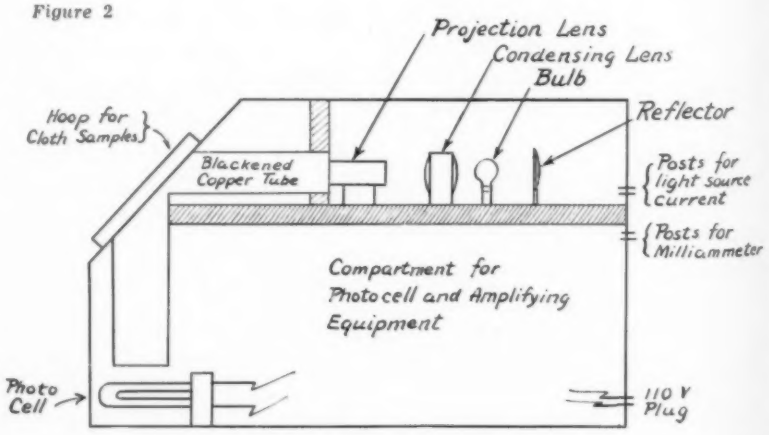
The values obtained are found to depend upon position of the cloth. This is due to the nature of the weave and finish. The samples are read in positions 90 degrees from each other. The results are consistent for the various positions. This instrument does not yield a curve as regular and flat as the Hess-Ives but it does give a workable sensitivity range which may be justified by its simplicity and low cost.

Most photo-electric devices used for this purpose, use photo-electric cells with no amplifying apparatus and consequently require a microammeter. In addition, trouble is encountered in the use of high voltage light sources due to fluctuation in line voltage.

The Ransom and Edelstein Reflectometer[1] uses two copper oxide photocells lined up in such a manner that the reading is a ratio of light striking the cell. This eliminates the danger of small light intensity changes due to line voltage fluctuation. An ordinary 100 watt bulb is used as light source.

A reflectometer[2] designed by Dr. E. Loewenstein, describes the use of diffused light on the sample to be

Figure 2



[1] *American Dyestuff Reporter* 26, 432, 1937. H. Ranson and S. Edelstein.
[2] *Soap* 15, No. 4, 31, 1939. Dr. E. Loewenstein.

tested. It is claimed that the diffused light strikes the surface of the sample so that the reading is less affected by the angle (to the beam of light) and differences in weave.

Appreciation is expressed for the help given in the design and construction of the photo-electric amplifier and rectifier to Dr. H. W. Bixby of the Electrical Engineering Department of Wayne University.

—— ♦ ——

Sulfonated oils of the type of Turkey red oil have recently been used in the treatment of dermatitis. They are miscible with water, emulsify dirt and grease on the skin, and are of especial value in that they do not defat the skin. Sulfonated petroleum oils are not as good as sulfonated vegetable oils because of the tendency of the former to defat the skin.

The defatting action of some of the synthetic wetting agents used can be counteracted by mixing them with sulfonated oil. A mixture consisting of sulfonated castor oil having a pH of 7.2 and an oil content of 50 per cent, with one of the wetting agents such as Santomerse, Duponol, or Igepon, makes a good cleanser and does not defat the skin. Addition of an alkali such as 1-2 per cent of trisodium phosphate or sodium hexametaphosphate, increases the cleansing power, with only a slight increase in irritant properties.

The above preparation is used in the same way as liquid soap. It has been tried successfully in two large industrial plants in both of which dermatitis of the hands from harsh skin cleansers, had been present for years. Louis Schwartz, M.D. Public Health Reports, p. 1783 (1941).

—— ♦ ——

Determination of the carbonyl number without regard for the free acids in the original fat indicates aldehydes, aldehydic acids, ketonic acids and ketones, hydroxyketonic acids, esters of these, remaining free acids, and in an undefined way, peroxides. The carbonyl numbers of coconut oil, palm-kernel fat, peanut and soybean oil were determined at intervals during 80 days with storage in open containers in diffused light at room temperature. The values for carbonyl number rise progressively. Coconut oil has the lowest and palm-kernel oil the highest carbonyl number and peroxide value. There is no rigid correspondence between the two.

Some accelerated oxidation tests were run by blowing oils at 140° C. Coconut oil and palm-kernel fat give a rapid rise of carbonyl number, then taper off gradually. Pressed tallow was blown three times as long as palm-kernel fat, yet gives a lower carbonyl number. Peanut oil shows a more rapid increase in carbonyl number than pressed tallow, probably because of higher content of unsaturated acids.

Upon the assumption that one peroxide group reacts like a carbonyl group the latter is equal to peroxide value times 0.28. This correction is applied to carbonyl number and is of importance only when the peroxide value is high. Before the carbonyl number is of real value in determining the rancidity of fats, more work will need to be done. H. P. Kaufmann and Fu-Ying Liu. *Fette und Seifen* **47**, 506-10.

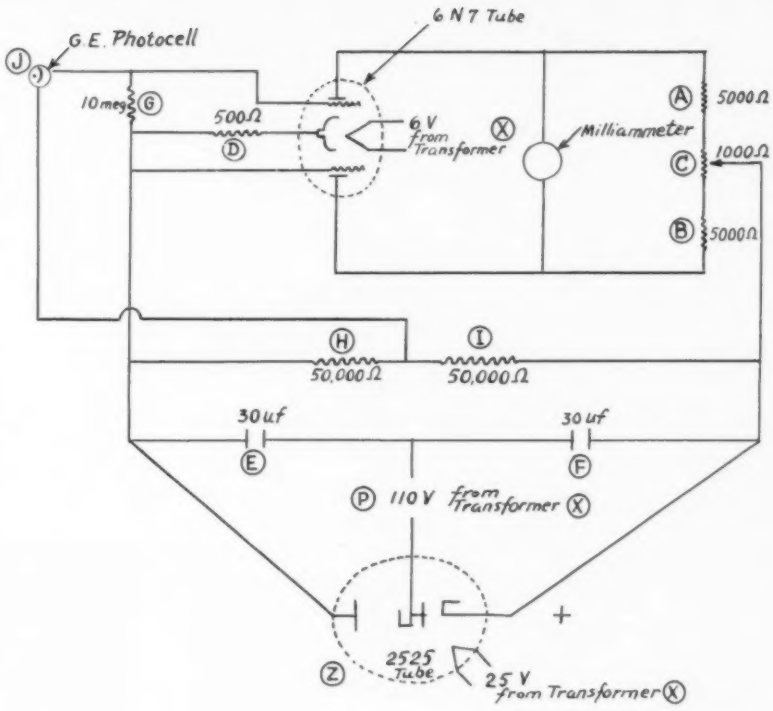


DIAGRAM OF AMPLIFYING & RECTIFYING CIRCUIT

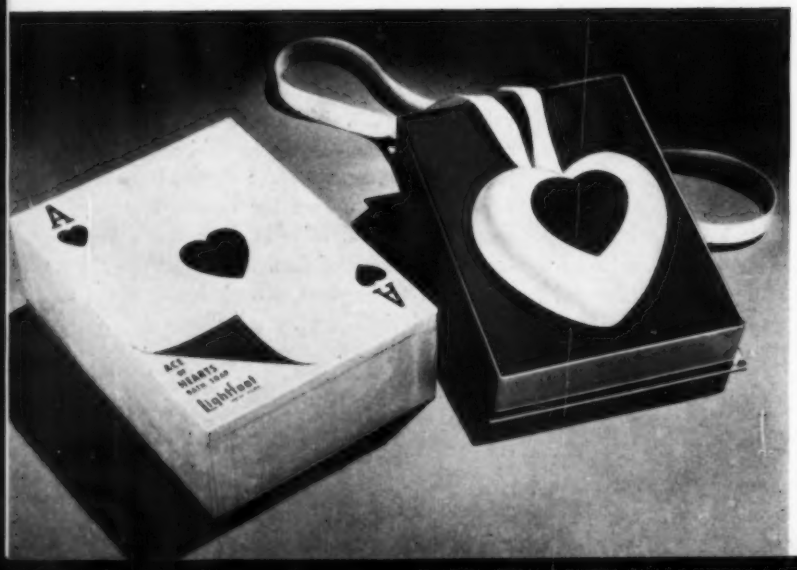
LIST OF AMPLIFIER AND RECTIFIER PARTS

Code				*1941 List Price*
(A) (B)	2	5000 OHM 10 Watt Brown Devil Ohmite Resistors		0.80
(D)	1	500 OHM 10 Watt Brown Devil Ohmite Resistors		.40
(H) (I)	2	50000 OHM 10 Watt Brown Devil Ohmite Resistors		.80
(G)	1	10 MEG OHM 1 Watt I.R.C. Resistor		.20
(E) (F)	2	Dry Electrolytic Condensers Type DE 926 16 uf, 220 V		2.30
(N)	1	6 N7 Tube		1.55
(Z)	1	25Z5 Tube		.95
(J)	1	General Electric Photo tube, PJ 22	*Primary* 115 volts	
	3	Octal Tube Sockets	*Secondary* 115 V—0.1 Amp.	
(X)		Osborne Transformer (made to order)	25 V—0.3 Amp.	
(P)		110 V Motor Plug (male)	6.3 V—0.8 Amp.	
(C)		Centralab 72107 1000 OHM Voltage Divider		1.00

New Products and

A "Duraglas" opal bowl, mounted on a black plastic hanger, a clog-proof and leak-proof valve, and attractive lines, feature the new home model soap dispenser of Bobrick Manufacturing Corp., of Los Angeles, Calif. "Duraglas" bowl made by Owens-Illinois.

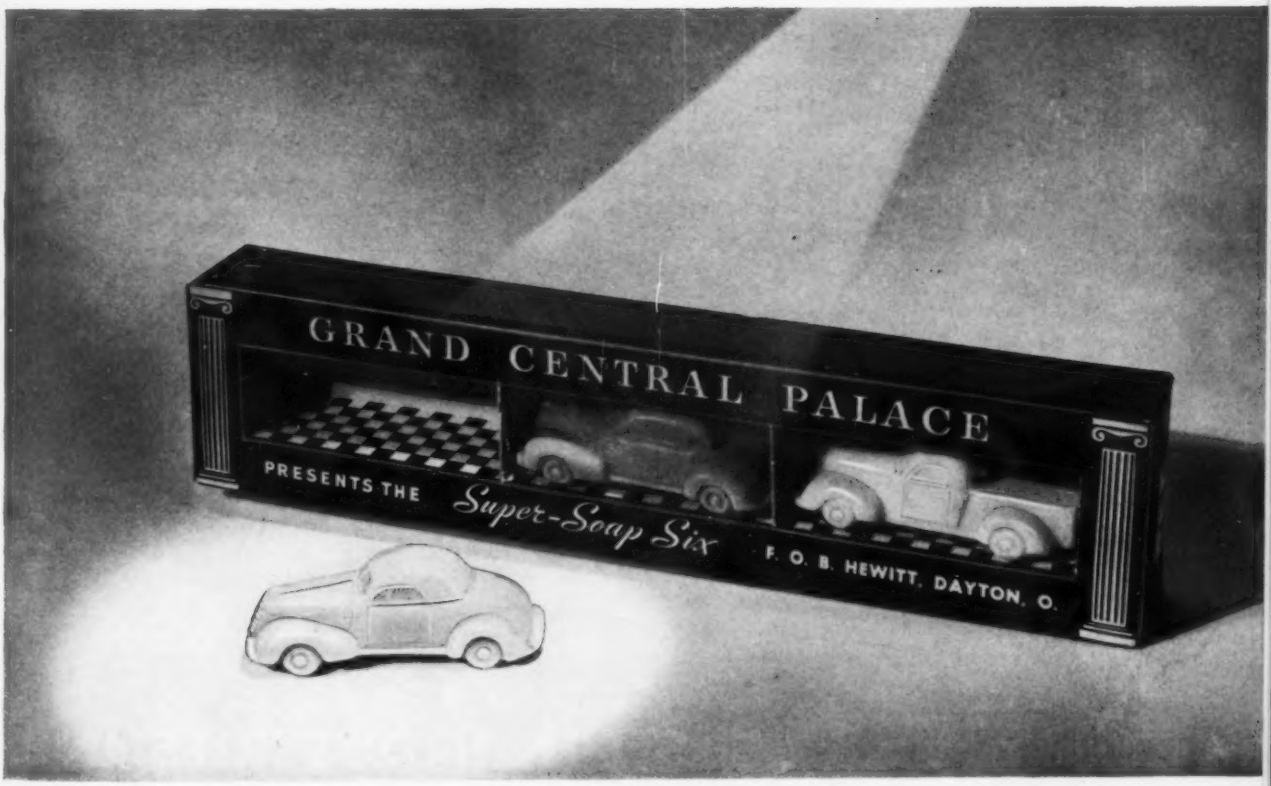
The Old Spice Token Box, a new addition to the Early American line of Shulton, Inc., New York, contains guest soap, toilet water, talcum powder, a sachet pillow, and—the token—a picture frame.



The latest novelty creation of Lightfoot Schultz Co., New York, the "Ace of Hearts," was timed to meet the Valentine's Day demand. It is a heart-shaped cake of soap, packed in a box resembling a deck of cards with the pip in red and gold sides, to simulate a real deck.

Packages

"Namel," "Take Off," and "Glass Cleaner," are three new products of Windsor Wax Co., Hoboken, N. J. "Namel" and "Take Off" are a wax base cleaner for refrigerators, and a remover for all wax, while "Glass-Cleaner" is a spray-on liquid for windows.



The WPB says no more automobiles, but Hewitt Soap Co., Dayton, here presents a triple feature, the WPB notwithstanding, as its latest offering for the kiddies. The three novelties retail at 29 cents.

RAW MATERIALS

FOR THE SOAP AND ALLIED INDUSTRIES

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NEWS....

Deupree Heads Advisory Board

Richard R. Deupree, president of Proctor & Gamble Co., Cincinnati, was elected chairman of the business advisory council of the Department of Commerce, Washington, D. C., for 1942, at the first meeting of the council. The council is a voluntary committee of sixty business and financial leaders who help the government get cooperation from business.

Ad Clinic to Hear C-P-P Man

Charles R. Vint, president and general manager of Colgate-Palmolive-Peet Co., Ltd., Toronto, is scheduled to speak on "Canadian Advertising in War" before the spring meeting of the Printing and Advertising Clinic, sponsored by General Printing Ink Corp., New York, to be held April 14 in the auditorium atop the Port of New York Authority Building.

Soapers on A.N.A. Committee

Membership of the newspaper committee of the Association of National Advertisers, Inc., as recently announced in New York, includes Lee H. Bristol, of Bristol-Myers Co., Frank Minehan, of Lever Brothers Co., and James E. Weber, of Armour & Co.

Flick Named Armour V.P.

D. M. Flick, manager of Armour Soap Works, Chicago, was elected a vice president of Armour & Co., at a meeting of the Board of Directors, Jan. 23.

AGMA Appoints W. B. Howard

William B. Howard, administrative assistant to the manager of the soap department of Colgate-Palmolive-Peet Co., Jersey City, was recently appointed executive vice-president of the Associated Grocery

WILLIAM B. HOWARD

Manufacturers of America. Mr. Howard joined the Palmolive Co. shortly after the last war.

L. A. Soap Executive Dies

Albert E. Slaught, vice-president of Los Angeles Soap Co., died last month at St. Vincent's Hospital, Los Angeles. He was seventy years of age and had been in ill health for the last two years. A native of Pyramid Lake, Nev., Mr. Slaught had lived in southern California since 1872, and had been associated with Los Angeles Soap for fifty-three years. Mr. Slaught is survived by his widow, a son, F. Ellsworth Slaught, and three grandsons.

P. Q. Appoints Russell

Philadelphia Quartz Co., Philadelphia, silicates of soda, recently appointed John C. Russell as assistant sales manager. Mr. Russell began his business career with the sales department of the company.

Weissman Leaves Watkins Co.

Harold A. Weissman, after twenty-five years as sales and advertising manager and vice-president of R. L. Watkins Co., New York, has just resigned from the company. He has also resigned as president of Vita-Ray Corp., Lowell, Mass., Ayer Co., Lowell, and Delatone Co., New York, all subsidiaries of Sterling Products, Inc.

Foots Not Olive Oil: FTC

Velodent Products Manufacturing Co., New York, maker of "Velvo-Smooth Palm and Olive Oil Brushless Shaving Cream," was recently charged with misrepresentation by the Federal Trade Commission. The complaint alleges that the product, which is sold nationally, contains a small percentage of olive oil foots, while the brand name is said to constitute a representation that the product is composed of a substantial part of olive oil. According to the complaint, the brand name, which is imprinted on the tubes and containers in conspicuous type, misleads the public into the mistaken belief that the product is actually manufactured from and contains olive oil.

Pepper to Address DCAT

The Honorable Claude Pepper, United States Senator from Florida, will be the principal speaker at the 17th annual banquet of the Drug, Chemical and Allied Trades section of the New York Board of Trade, which is to be held March 12 at the Hotel Waldorf-Astoria, New York. Senator Pepper will speak on "A Democracy Mobilized." Advance reservations for the banquet number more than 1,600 at the present time. A capacity crowd of 2,000 is expected.

Suggest Soap Economies

The United States Department of Agriculture, through its Consumers Council division of the Agricultural Marketing Administration, has suggested that, because of the shortage of fats and oils, "home soap making may be in order on some farms and in a few city homes, though not many." The proposal, accompanied by carefully guarded qualifications, is made in an article entitled "Fat of the Land," carried in the Feb. 15 issue of *Consumers Guide*, semi-monthly publication of the Consumers Council division.

"The time has not come," says this article, "when Americans are being asked to make soap at home, but some farm families find it a practical way to use up fats and oils that can't be eaten." It is admitted that for most city families soap making is not practical, "but," continues the article, "soap making may be practical as a community project." And, since to make soap "people will need some know-how," the article presents a "simple" recipe for soap making, including directions on what to do if the lye burns skin or clothing.

By buying soap in quantities, the article also suggests, consumers can get substantial price reductions. "You and the families next door might together buy the soap you need for a current period in case lots. Buying in bulk saves the cost of packages. Soap powder, soap chips and water softeners can sometimes be obtained cheaper this way."

Another suggestion offered deals at length with means and methods for softening hard water to save on laundry soap bills. Zeolite systems for softening water are explained and likewise the action of trisodium phosphate, washing soda and borax, "which can be bought at the grocer's or at a hardware store." Continuing, the article says, "Laundry soaps and powders whose advertisements promise whiter clothes, usually contain these water softeners or other products that reduce or prevent formation of curds, such as tetrasodium hydrophosphate. It is cheaper, however, to soften water yourself."

Soapers at Canners Session

Manufacturers of soaps and household cleaning products were numerously represented at the various conventions of grocers, canners and other food processing and distributing groups, held in Chicago during the annual "Canners' Week" Jan. 26 to 30. No formal exhibits were in evidence at any of the convention trade shows but conference rooms with displays were maintained at a dozen different hotels. In the official directory, compiled for the occasion by the Chicago Hotelmen's Association, the following names were noted:

B. T. Babbit, Inc., New York; Beacon Chemical Corp., Philadelphia; Calgon, Inc., Pittsburgh; Chemicals, Inc., Oakland, Calif.; Cleanser Products, Inc., Chicago; Dearborn Chemical Co., Chicago; Fels & Co., Philadelphia; Hecker Products Corp., shoe polish division, Indianapolis; Iowa Soap Co., Burlington, Ia.; Midland Chemical Labs., Dubuque, Ia.; Penick & Ford, Ltd., Cedar Rapids, Ia.; Midway Chemical Co., Jersey City; Penn-Champ Laboratories, Inc., insecticide division, Butler, Pa.; Procter & Gamble Distributing Co., Cincinnati; Purex Products, Inc., Baltimore; S. O. S. Co., Chicago; Vestal Chemical Labs, Inc., floor wax division, St. Louis; Allen B. Wrisley Distributing Co., Chicago.

New Commercial Bleach

A product offered to help supply bleach needs created by the chlorine shortage is called "White Mule Laundry Compound," made by the White Mule Products Co., Lansing, Mich. The material is said to have water-softening and cleansing properties in addition to its action as a bleach, and to be satisfactory for use on silks, woolens and rayon.

National Can Chicago Plant

A new plant for National Can Co. is nearing completion at 51st St. and Austin Ave., Chicago. The structure will contain 77,500 sq. ft. of floor space.

Ungerer Director Dies

Milton S. Butler, secretary and director of Ungerer & Co., New York, died last month at Tangerine, Fla., where he was vacationing. He was 52 years old and had been suffering from heart trouble for the past year. During the first World War, Mr. Butler served in the U. S. Navy. About 17 years ago he joined with Ungerer & Co., becoming secretary in 1933.

Swift Reports To Employes

Swift & Co., Chicago, have added 12,000 employees to the company payroll during the past 14-month period, John Holmes, president, stated in his annual report to company employees. The total payroll now numbers 73,000 and will be further increased in 1942, he predicted. In his message to workers, Mr. Holmes said average hourly wages have been increased 49 per cent since 1929. Average weekly earnings rose 18 per cent, although the work week dropped from 50 to 40 hours. Division of Swift's sales dollar in the 1941 fiscal year showed that 11.5 cents went to employees, 1.75 cents to shareholders and the balance for raw materials, supplies, transportation, etc. During 1941 the company distributed more than a billion dollars worth of products.

Sale on "Faircrest" Soaps

The Fair, Chicago department store, conducted a special promotion for its private brand toilet and laundry soaps during January, with price cuts on some as inducements for purchase. Listed at special prices were "Faircrest" bath soap, "Fair" superfatted soap, "Faircrest" hard water soap, and "Fair" oatmeal facial soap.

Monsanto Organizes Car Clubs

Employees of Monsanto Chemical Co., have organized "Share-Your-Car" clubs to assist in conservation of tires, tubes and automotive equipment. The clubs, which will operate in the company's 14 plants and ten branch offices, were created to insure capacity loads in employee-owned automobiles to and from work.

Soap Committee Meets

MEMBERS of the newly organized Soap and Glycerine Industries Advisory Committee held their first meeting in Washington, February 5. The meeting was held at the headquarters of the War Production Board, with J. B. Davis as government presiding officer, assisted by George A. Wrisley, chief of the Soap and Glycerine Unit. Numerous government officials were in attendance, as well as Roscoe C. Edlund and N. N. Dalton of the Association of American Soap and Glycerine Producers, and John B. Gordon of the Bureau of Raw Materials.

The meeting was a closed session and no complete report on the discussion was permitted. It was indicated, however, that one of the subjects discussed was a contemplated order to limit non-war uses of glycerine. This order incidentally, would also restrict very closely the amount of glycerine which may be retained in soap. Another proposed order would eliminate use of coconut, palm kernel and babassu oils from products, including soap, where more than a specified minimum glycerine content remains.

The government is currently surveying glycerine users to check on present stocks and estimated requirements for the coming year. Steps are also being taken to increase the supply by boosting present productive capacity, stimulating new sources, securing recovery from industrial and household wastes, and taking steps to obtain exportable surpluses from South America. It was reported further that a bill has just been introduced in Congress looking to the elimination of the extra 2-cent a pound excise tax on coconut oil made from copra coming from other sources than the Philippines, so that only the regular 3-cent processing tax will remain, and this added barrier standing in the way of imports will be removed.

As to current and future requirements of the soap and glycerine industry for other materials and supplies necessary to maintain production, it was reported that a questionnaire survey of the industry is in prospect to uncover estimated requirements for 1942. It was suggested that soap and glycerine manufacturers who currently require repair, maintenance and operating supplies on a more favorable basis than under P-100 should file applications under the new Preference Rating Order P-89. Letters should be addressed to the Chemicals Branch, War Production Board, Temporary Building R, Washington, D. C. The application must set forth amounts of materials used for repair, maintenance and operation for the first six months of 1941, inventories of such materials on December 31, 1940, and on June 30, 1941.

A second meeting of the Committee originally scheduled for February 26 will not be held until March 6 in order to permit four recently appointed sub-committees to hold their meetings and make recommendations to the Industry Advisory Committee. The sub-committees and the problems they are to discuss are as follows:

Sub-committee on Fatty Acids

How can the fatty acid industry cooperate with the soap industry, particularly on certain types of soap manufacture where glycerine recovery is not possible and practical?

(a) Cold soap type
(b) Half boiled type
(c) Liquid soaps
(d) Potash soaps

To check government specifications on soaps which are or can be made by the fatty acid method of soap manufacture with the view of recommending changes necessary to permit maximum glycerine recovery.

Sub-committee on Liquid and Potash Soaps

To what extent is it possible for liquid and potash soap manufacturers to make their soaps from fatty acids?

To what extent and what quality of fatty acids are required and to what extent can they be made available for liquid and potash soap manufacture?

To check government specifications on soaps which are or can be made by the liquid and potash method of soap manufacture with the view of recommending changes necessary to permit maximum glycerine recovery.

Following a meeting of this subcommittee in Washington, February 24, the WPB issued a release indicating that "smaller manufacturers may not be required to effect a complete recovery of the glycerine in their product because of the relatively small amount of glycerine obtained and the excessive cost of getting it."

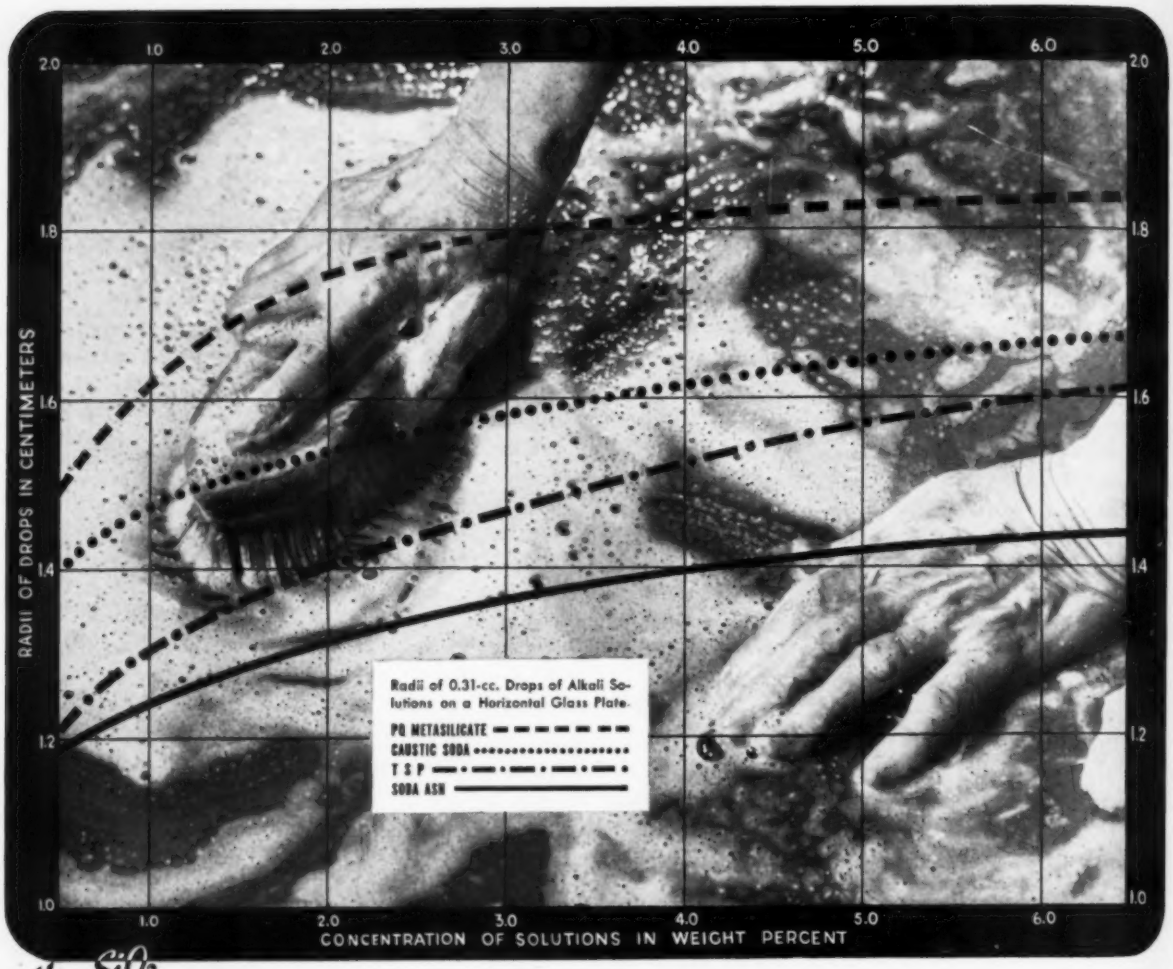
Sub-committee on Small Soap Manufacturers

What are the best means of assisting the so-called small soap manufacturer to meet the problem of glycerine recovery from all fats

(*Turn to Page* 49)

Personnel of the
Soap and Glycerine Industries Advisory Committee

HOMER D. BANTA	Iowa Soap Co.	Burlington, Iowa
F. A. COUNTWAY	Lever Bros. Co.	Cambridge
N. S. DAHL	John T. Stanley Co.	New York City
R. R. DEUPREE	Procter & Gamble Co.	Cincinnati
D. M. FLICK	Armour & Co.	Chicago
G. R. FULTON	Beach Soap Co.	Lawrence, Mass.
R. H. GIEBEL	Harshaw Chemical Co.	Cleveland
W. C. HARDESTY	W. C. Hardesty Co.	New York City
E. B. HURLBURT	J. B. Williams Co.	Glastonbury, Conn.
E. H. LITTLE	Colgate-Palmolive-Peet Co.	Jersey City, N. J.
J. S. MacINTOSH	The Holbrook Mfg. Co.	Jersey City, N. J.
F. H. MERRILL	Los Angeles Soap Co.	Los Angeles
E. A. MOSS	Swift & Co.	Chicago
A. ROY ROBSON	Fels & Co.	Philadelphia
WERNER G. SMITH	The Werner G. Smith Co.	Cleveland
L. WEBB, JR.	Hunnewell Soap Co.	Cincinnati
RUSSELL YOUNG	Davies-Young Soap Co.	Dayton, Ohio


RADII OF DROPS IN CENTIMETERS
CONCENTRATION OF SOLUTIONS IN WEIGHT PERCENT
Radii of 0.31-cc. Drops of Alkali Solutions on a Horizontal Glass Plate.
PQ METASILICATE
CAUSTIC SODA
T S P
SODA ASH

How SiO_2 Aids Cleaning—

PQ Silicates Speed Wetting Action

At first contact good detergents must saturate the surface being cleaned. And that's just the action point for the soaps and cleansers built with PQ Silicates.

How very efficiently the soluble silica content increases the ability of water to wet surfaces has been proved repeatedly. The relative wetting powers of aqueous solutions of various alkalis are plotted in the graph shown above.*

In this demonstration a thoroughly cleaned plate glass is laid over a sheet of ruled cross-section paper. Equal volumes (0.31 cc) of the alkaline solutions at a constant temperature are dropped on the glass. The radius of each drop depends on the wetting power of the respective solutions. Note that the curve for the silicate solution is well above those for other alkalis.

Use PQ Silicates for the improvement of wetting action in your cleaners. PQ Silicates are economical.

**Baker, C. L.—Ind. Eng. 23, 1025-32 (1931)*

PHILADELPHIA QUARTZ CO.

SILICATES OF SODA

125 S. THIRD STREET, PHILA., PA.

WPB Sees No Soap Lack

Adequate supplies of soap over the coming year are predicted by the War Production Board in a public statement issued February 9. In spite of loss of our Philippine coconut oil sources and palm oil which the United States normally imports from Sumatra, the WPB predicts that soap output will continue at a high level because of the national necessity of encouraging the highest possible glycerine output. "Stocks of copra, babassu nuts and palm kernels are being marshalled" says the WPB, "so that with transportation from Latin America, the South Seas and Africa, they can meet the needs of soap producers."

The glycerine content of soap, however, says the WPB, will be cut to less than 1 per cent. The housewife will also have a chance to aid the glycerine program "through a concerted effort in saving glycerine content garbage and not making her own soap." Though this section of the WPB statement seems to be rather obscurely worded, it would seem to be the object of the Board to discourage home soap manufacture, advocated incidentally by other government agencies. The waste of recoverable glycerine content in home soap making methods would seem to be the obvious basis for the Production Board's opposition.

Kirkman & Son gave a dinner for company salesmen at Sardi's Restaurant in New York recently to celebrate the firm's taking over sponsorship of the radio program "Can You Top This?" The gentlemen with the grins, photographed at the dinner, are Jerome A. Straka, general manager of Kirkman & Son, Ed Ford, one of the humorists on the program, John D. Upton of N. W. Ayer & Son, and Peter S. Dech, Kirkman sales manager.

P. & G. Employees Meet

Over 4,000 employees of Procter & Gamble Co. celebrated the 109th profit-sharing dividend distribution at Music Hall on January 31, receiving $417,000 for the 1941 period; this was in addition to the 4 per cent paid on 1941 earnings as added compensation. Total profit-sharing dividends paid employees throughout the United States and Canada in 1941 reached $1,118,000, an all-time high. Since the plan was put into effect more than $17,000,000 has been paid to employees. The day's program included entertainment by stage and radio stars and a talk by Richard R. Deupree, P. & G. president, who emphasized the need of personal sacrifice and self-discipline, not only as necessary war measures but for the post-war period. Superintendent Fred A. Brown, Ivorydale Plant, also addressed the group, reviewing the various employee benefit plans. He said there were 7,546 members of the profit-sharing plan on Jan. 1, 1942 and that they own 142,000 shares of common stock valued around $6,700,000.

Field Adds Blind Cleaner

Marshall Field & Co., Chicago retail department store, have enlarged their line of household soaps and cleaning compounds by the addition of a new cleaner for Venetian blinds. The product, packaged under the "Marshall Field" private label, was being advertised last month at $1 per quart or $1.75 per half gallon.

Climalene Repeats Sampling

Climalene Co., Canton, O., conducted a repeat door-to-door sampling campaign in Chicago during January for "Climalene" household cleaning compound. A previous distribution of samples had been made last October and the more recent follow-up was intended to help housewives remember the product, it was said.

"Peggy Knox" Soap Flakes

Stineway Drug Co., operators of a chain of drug stores in the Chicago metropolitan area, have added a new soap product, "Peggy Knox Soap Flakes," to their line of soaps and cosmetics. The flakes are recommended for laundering nylon hose, silks, rayons, etc., and for dishwashing. The introductory price was 13½ cents per package.

Collect Fats in Chicago

A campaign to collect cooking fats and greases usually thrown away by housewives is being conducted in Chicago under the sponsorship of the local Office of Civilian Defense. Directions are given for saving, straining and storing kitchen fats and greases usually thrown out. Meat dealers are authorized to pay in cash or Defense Savings stamps at the rate

U.S.I. ALCOHOL NEWS

March ★ A Monthly Review of Technical Developments for Chemists and Executives ★ 1942

USERS OF S.D. ALCOHOL REQUEST SUBSTITUTES FOR DENATURANTS

Reformulation May Be Permitted As Result of Denaturant Shortage

The shortage of certain denaturants authorized for use in formulas of Specially Denatured Alcohol has created a definite problem for users of these formulas in the manufacture of finished products. Oil of Lavender, U.S.P., and Oil of Bergamot, U.S.P., are typical examples of denaturants which are becoming increasingly difficult to obtain. The problem is particularly acute in the case of many of the denaturants authorized for the S.D. formulas used by the toilet goods industry in the manufacture of perfumes, toilet waters, and other toilet preparations.

Recent rulings of the Alcohol Tax Unit indicate recognition of the problems of users of S.D. Alcohol. On January 15, Circular A.T. No. 603 was issued, dealing with the substitution of S.D. 39B in place of S.D. 40.

The circular reads as follows:

"Due to the difficulty of obtaining Specially Denatured Alcohol Formula No. 40, many permittees are resubmitting quantitative formulas of all their preparations now being made with Specially Denatured Alcohol Formula No. 40 for approval for manufacture with Specially Denatured Alcohol Formula No. 39B.

"You are requested to advise permittees desiring to use Formula No. 39B in lieu of Formula No. 40 that it will not be necessary to resubmit the quantitative formulas of their approved preparations on Forms 1479-A, provided a list, in quadruplicate, is furnished showing the name of each approved preparation, the sample number, if any, the date of approval, and the Code number, with a statement that the preparations will be manufactured in accordance with the approved formulas now on file, using Specially Denatured Alcohol Formula No. 39B in lieu of Specially Denatured Alcohol Formula No. 40.

"If there are any changes in the composition of any of the preparations, other than in the kind of Specially Denatured Alcohol used, revised quantitative formulas, on Forms 1479-A, in quadruplicate, should be submitted for consideration."

Use of Oil of Cedar Leaf

The U.S. Pharmacopoeia standards for Tincture of green soap have been revised to permit the substitution of Oil of Cedar Leaf for Oil of Lavender. The Alcohol Tax Unit has advised that permittees desiring to use Oil of Cedar Leaf in place of Oil of Lavender as a denaturant of S.D. 27B need merely file Forms 1479-A, including complete formula and formulation of S.D. 27B with Oil of Cedar Leaf, and that this formulation will be approved by the Alcohol Tax Unit.

S.D. 40 and 27B are only two of the formulas affected by a shortage of denaturants, and users of other formulas are also beginning to experience difficulty in obtaining alcohol because of denaturant scarcity.

"The Board of Standards of The Toilet Goods Association has been conscious of this problem ever since it arose," Mr. S. L. Mayham, Director of the Board, told U.S.I. ALCOHOL NEWS. "The Board has been working through its scientific Advisory Committee on the development of a new denaturing formula or formulas which would temporarily take the place of 39B and 40 in the production of cosmetics and toilet preparations. The Committee, among whose members are the leading scientists in the industry, has studied a number of substances which might be used in this new formula, and has submitted to the Alcohol Tax Unit several suggestions, some of which are being favorably considered. The Board of Standards would be very pleased to receive suggestions from any member of the industry regarding any new denaturants. They should be addressed to the Board of Standards, The Toilet Goods Association, Inc., 30 Rockefeller Plaza, New York, N. Y."

ALCOHOL ADDITION HELPFUL IN PERMANENT WAVE FLUIDS

Because hair appears to have the ability to absorb alcohol and retain it for considerable periods of time, additions of alcohol are reported to have a beneficial effect in permanent waving fluids. Alcohol additions are described as particularly useful in cases where the hair has been damaged, for in such cases the hair takes a better wave if alcohol is present in the fluid.

Another use for alcohol in permanent wave fluids is in cases where lanolin is to be added for the emollient effects that may result from the presence of fats or oils. The lanolin is often added to the wave fluid in the form of an alcoholic solution.

ALCOHOL FINDS MANY USES FOR ANTISEPTIC PURPOSES

Because of its excellent antiseptic properties, ethyl alcohol is extensively used in many medical and surgical applications. Typical hospital uses of ethyl alcohol include surgical soap preparations, sponge baths, and sterilization of skin and of instruments.

These antiseptic properties are frequently an added advantage in preparations in which alcohol is used primarily for its solvent powers. In many types of drugs and cosmetics, for example, alcohol appears to exert a preservative action, in concentrations ranging from 15 to 20%.

TECHNICAL DEVELOPMENTS

For further information, write U.S.I.

An imitation lemon oil is described as suitable for replacement of the natural product in many applications. **(No. 550a)**

Synthetic para-cymene is now being produced from liquid terpenes, it has been announced. It is said that the material may be used as an intermediate in the preparation of phenols, thymol, and carvacrol. **(No. 551a)**

A continuous thickener utilizes a filtration principle, it is reported. Suspension to be thickened is pumped through a unit which resembles a plate and frame filter in external appearance. **(No. 552a)**

An odorless paint is described as especially suitable for application where the odor of conventional paints might be undesirable. **(No. 553a)**

U.S.I. INDUSTRIAL CHEMICALS, INC.

60 EAST 42ND STREET, NEW YORK — CHEMICALS — INDUSTRIAL — ANTI- — USI SERVICE TO INDUSTRY — SOLVENTS — ALCOHOLS — FREEZE — BRANCHES IN ALL PRINCIPAL CITIES

of 5 cents per pound for clear, light grease or 4 cents for clear, dark grease. Rendering companies and soap manufacturers are said to be providing funds for the campaign which was started as an experiment and may be extended nationally.

ASTM Soap Committee to Meet

The annual Spring meeting of committee D-12, of the American Society for Testing Materials, will be held at the Hotel New Yorker, New York, March 9 and 10, Secretary B. S. Van Zile, of Colgate-Palmolive-Peet Co., Jersey City, has announced. The schedule of subcommittee meetings is as follows: March 9, 9:30 to 11:30 a. m., sulfonated detergents specifications, publications; 11:30 a. m. to 1:00 p. m., soap methods, sulfonated oils methods; 2:00 to 5:00 p. m., textile soaps specifications, straight soaps specifications; 3:00 to 4:00 p. m., dry cleaning; 4:00 to 5:00 p. m., advisory committee. March 10, 9:00 to 11:00 a. m., built soaps specifications; 9:30 to 11:00 a. m., metal cleaners; 11:00 a. m., to 1:00 p. m., definitions; 11:00 a.m. to 12:00 noon, special detergents specifications; 12:00 to 1:00 p. m., special detergents methods. The group luncheon will be held at 1:00 p. m., followed by a general meeting.

Chi. Soap Association Elects

William H. Schutte, of P. R. Dreyer Inc., was elected president of the Chicago Perfumery, Soap & Extract Association at a recent meeting. Other officers elected are as follows: Dr. J. B. Montenier, of Jules Montenier & Co., vice-president; and C. A. Hammond, of F. N. Burt Co., secretary-treasurer.

A. Valley Becomes Isco Mgr.

Adolph Valley, who has been associated with Innis, Speiden & Co., New York, since 1933, was recently appointed manager of the company's Cleveland office, taking the place of D. S. Cushman, who has been transferred to New York as assistant manager of sales. Mr. Valley is a graduate of Ohio State University.

Cowles Appoints R. V. Finch

Robert V. Finch, formerly assistant sales manager of the heavy chemical department of Cowles De-

R. V. FINCH

tergent Co., Cleveland, was recently made representative of the company in northeastern Ohio and northwestern Pennsylvania, where he will handle the Cowles line of alkaline metal cleaners and wire drawing lubricants.

C-P-P Receives Tax Refund

Colgate - Palmolive - Peet Co., Jersey City, with a return of more than $208,000 on sales taxes, received the largest tax refund allowed New Jersey firms by the Internal Revenue Bureau in the 1941 fiscal year, it was announced recently by the house committee on expenditures in executive departments.

Ration Soap in Britain

Soap rationing, which cuts the soap use of the average English family to about 80 per cent of normal consumption, was begun in Great Britain last month by order of the Ministry of Food. The move was made, it was said, to economize on imported soap oils, so that more shipping space might be used to maintain the rations of edible fats. Edible fats have been rationed in Great Britain, for some months. Each Briton, under the new order, receives four coupons a month, each of which entitles him to one of the following: 4 oz. of common household soap in bars or pieces; 3 oz. of toilet soap or soap flakes or chips; 6 oz. of No. 1 soap powder (containing 28 to 56 per cent waterless soap); 12 oz. of No. 2 soap powder (containing 6 to 28 per cent waterless soap); or 6 oz. of soft soap. This is the equivalent of approximately four times the German soap ration of less than three ounces of low-grade soap a month. Shaving soaps and creams, scouring and abrasive soaps, liquid soaps, shampoo powders and dental cleaners are exempted in the rationing order.

Record Glycerine Output: 1941

Glycerine production in 1941 was 23.7 per cent higher than in 1940, the previous high year, according to a preliminary report of the census bureau, U. S. Department of Commerce. Figured as absolute glycerol, or 100 per cent concentration, the production for the year totalled 195,281,600 pounds as compared with 157,866,600 pounds in 1940. However, disappearance of glycerine during the year exceeded production, and stocks at the end of the year were only 60,271,090 pounds compared with 70,888,926 pounds at the end of 1940.

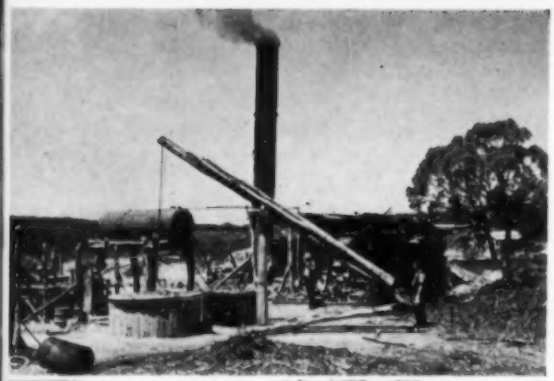
Form Victory Soap Co.

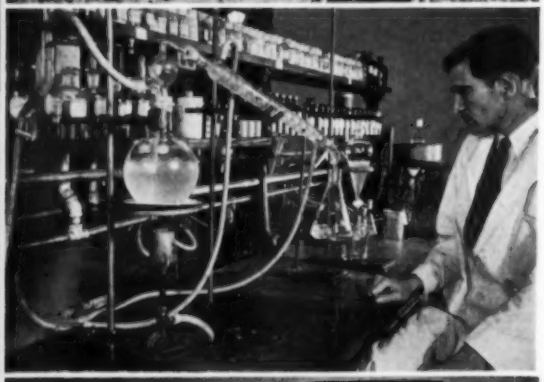
Victory Soap & Chemical Co., New York, a new company in the sanitary specialties field, has just opened offices at 570 Tenth Avenue. Murray Jacobson, chemist, formerly with the U. S. Department of Agriculture, is president of the company, which will be in active production by April 15.

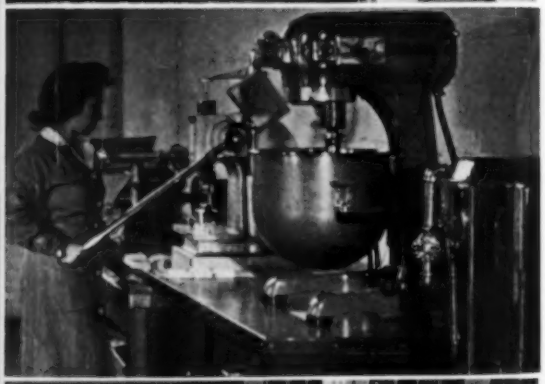
P. & G. Adds to Chi. Plant

Procter & Gamble Manufacturing Co. last month acquired a plot of ground diagonally across from its soap plant at North and Magnolia Avenues, Chicago. The property measures 192 by 394 feet, and was bought for $50,000, it was reported. An old three-story brick building on the property may be remodeled and used for warehousing, a company official stated.

BACKGROUND VALUES . . . a PART of the product, APART from the pr







HIGH up in the list of cardinal business virtues is that of *thoroughness* . . . of doing the job *well* if the job's worth doing at all. Certainly the prod of thoroughness has been a moving force in many of the undertakings our organization has initiated. Conspicuous among these is the vast fund of authentic data on the technical, scientific and commercial aspects of essential oil production which has been gathered by us since these studies were inaugurated some seventeen years ago and which is based upon first-hand investigations of original sources of supply. In that time, our research specialists have traveled tens of thousands of miles and covered personally all but a very few of the world's principal centers of production. Typical, also of FRITZSCHE thoroughness was the establishment of factories in France and in America, as the only certain means of providing domestic consumers with floral products and essential oils of unqualified purity and uniformity. It goes without saying that this great reservoir of technical knowledge and practical experience, coupled with our findings in research, has provided an invaluable background for the work of our Soap, Perfume and Flavor Divisions in meeting the manifold needs of our customers. It assumes even greater importance, in the light of present day exigencies, as the necessity for developing new and independent American sources becomes more and more urgent. Significant of its import—and already a practical reality, is our collaboration with Government representatives in furtherance of our industry's vital and increasing needs.

It is a far cry from the distillation of eucalyptus oil in Australia to Paraguay's production of petitgrain, but both fields of investigation have been the subject of studies by our personal representatives. The long range effect of this work is to benefit our Soap, Perfume and Flavor Divisions . . . and ultimately, our customers. Photos from top to bottom: Australian eucalyptus still; Native still for petitgrain, Paraguay; Steam distillation in our New York Research Laboratory; Part of our specially equipped Soap Laboratory; Perfume Division Laboratory.

FRITZSCHE BROTHERS, Inc.

PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK, N. Y.

BRANCH STOCKS

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE

Headquarters for
ESSENTIAL OILS • FLAVORS
• AROMATIC CHEMICALS •
PERFUME RAW MATERIALS

New Linseed Soap Specs

New specifications for Potash-Linseed Oil Soap for floor and general cleaning, Fed. Spec. P-S-603, were recently issued by the U. S. director of procurement and became effective March 1, 1942. The new specifications supersede Fed. Spec. P-S-613. The principal revision is the division of the material into two types: Type I.—liquid; and Type II.—paste, where formerly only the paste type had been covered by the specification.

The general requirements for Type I are as follows: the material shall be a uniform liquid soap made solely from whole neutral raw linseed oil and potash. It shall be soluble in soft water and when diluted with water shall act as a cleaner. The flash point shall be above its boiling point. It shall not contain any solvents or oils that will damage floor surfaces. Its odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on surfaces after washing with a water solution of the soap and rinsing thoroughly with water.

Detail requirements for both types are given in the table below:

It will be noted that per cent is determined by the toluol distillation method rather than the xylol distillation method formerly used. Other changes are: a maximum free acid content, calculated as oleic acid of 0.2 per cent allowed in Type II where formerly "None" was specified; a maximum of 1 per cent unsaponified matter in Type II instead of the former 2 per cent; and the added requirements that the acid number of the mixed fatty acids derived from the soap be more than 190 and less than 205.

Lever Ad Dept. Appoints

M. J. Roche and Henry M. Stevens have been appointed assistant advertising managers of Lever Brothers Company. Mr. Stevens will continue in direct charge of advertising of Swan Floating Soap. Mr. Roche will continue to serve on problems of advertising management.

Albany Soap Elects Grober

Albany Soap Corp., Albany, N. Y., elected Joseph Grober as president and general manager of the company for a one year term at a recent meeting of the board. Other officers were elected as follows: vice-president, Wm. C. Schopman; vice-president and assistant manager, Wm. H. Geier; treasurer, John H. Rea; and secretary, Harry J. Geier.

	Type I		Type II	
	Minimum-	Maximum	Minimum	Maximum
Moisture (toluol distillation method).....percent..	....	....	....	55
Total matter insoluble in alcohol.....percent..	....	0.5	....	1.0
Free alkali, calculated as potassium hydroxide (KOH) .....percent..	....	.05	....	.1
Free acid, calculated as oleic acid.....percent..	....	.1	....	.2
Alkaline salts, calculated as potassium carbonate (K_2CO_3) .....percent..	....	.1	....	.2
Matter insoluble in distilled water.....percent..	....	.1	....	.2
Chloride, calculated as potassium chloride (KCL) .....percent..	....	.3	....	.5
Unsaponified and unsaponifiable matter.....percent..	....	.4	....	1.0
Anhydrous soap, calculated as potash soap..percent..	20	....	43	....
Total sodium compounds, calculated as NA_2O percent..	....	.2	....	.5
Glycerol .....percent..	1.8	....	4	....
Iodine number (WIJS) of mixed fatty acids derived from the soap.....	175	....	175	....
Acid number of mixed fatty acids derived from the soap	190	205	190	205
Rosin	....	None	....	None
Sugar	....	None	....	None

Settle "Whiz" Dispute

Davies-Young Soap Co., Dayton, Ohio, was held to have a clear right to exclusive use of the trademark "Whiz" applied to grit paste soap as against R. M. Hollingshead Corp., Camden, N. J., in a decision recently handed down by the U. S. Court of Customs and Patent Appeals. In the same decision, the Hollingshead corporation was held estopped from claiming to be owner of the mark as applied to soap or to other goods possessing the same descriptive properties. (However, Hollingshead is owner of the mark as applied to numerous other types of sanitary supplies such as floor waxes, varnishes, stains, and cleaning and polishing materials.) The recent decision is the last chapter in a dispute which had its origin more than 30 years ago. The decision was based on the fact that, in 1912, the Hollingshead company sold its control over the mark as applied to grit paste soap to J. P. Davies Co., predecessor of Davies-Young Soap Co.

G. F. Chambers Heads Salvage

Gurth F. Chambers, general sales manager of Lever Brothers Co., Cambridge, Mass., was recently made director of the salvage division of the Massachusetts committee on public safety, in which position he has charge of a statewide household salvage program for rags, metal, rubber and other vital materials needed to speed the nation's war program. Mr. Chambers is also chairman of the tire rationing board at Dover, Mass., where he makes his home.

Introduce "Allure" Soap Flakes

Kroger Grocery & Baking Co. introduced "Allure" soap flakes to Chicago housewives in January. Purchasers of one regular 12½-oz. package at 19 cents were offered a second, full-size package for an extra cent. To promote their "Avalon" granulated laundry soap, Kroger offered a Cannon dish towel to purchasers of two large packages, with the guarantee "Like Avalon or another brand free."

keep 'em rolling and How!

Snow... sleet... icy roads... but the truckers keep on a schedule that's maintained day and night all Winter through. • All Winter through in many a big truck... small delivery car... or private sedan... Thermo-Royal Anti-Freeze is on the job helping to make that record of regularity possible! • Produced by the Publicker Commercial Alcohol Co., of Philadelphia, Thermo-Royal is a dependable Anti-Freeze and has been continuously available all Winter long! • *Crown Can* supplies containers in which Publicker, one of the largest producers of Anti-Freeze in the world, packs Thermo-Royal... the choice of millions of satisfied users!

CROWN CAN COMPANY, PHILADELPHIA, PA.
Division of Crown Cork and Seal Company. New York • Baltimore • St. Louis • Houston • Madison • Orlando • Fort Wayne • Nebraska City

INDEPENDENT AND HELPFUL CROWN CAN

CONTRACTS AWARDED

Toilet Soap Award

A contract for 10,000 cakes of toilet soap at $10.20 per 100 lbs., was awarded to Procter & Gamble Distributing Co., Philadelphia, in a recent opening for supplies by the Army Engineers Corps., Philadelphia. In the same opening, Mathieson Alkali Works, N. Y., was awarded a contract for 1,000 lbs. calcium hypochlorite at 26c lb. for the Army Engineers Corps, Washington, D. C.

Cleaner and Wax Awards

In a recent opening by the Post Office, Washington, D. C., the following contracts were awarded to R. M. Hollingshead Corp., Camden, N. J.: 5,500 gals. cleaner and renovator at 97c a gal.; 9,135 gals. of liquid floor wax at 48c a gal.

Naphthalene Bid

Standard Naphthalene Products Co., S. Kearny, N. J., submitted the low bid in a recent opening by the Marine Corp. on 120,000 lbs. naphthalene at 11.75c a lb.

Cleaning Compound Bids

In a recent opening by the Treasury Procurement Dept. for miscellaneous supplies, the following low bids were submitted: Fisher Products Co., New York, 45,000 lbs. scouring compound powder at 1.45c a lb.; National Milling & Chemical Co., 16,800 lbs. powder soap, at 3.35c a lb.

Metal Polish Bid

Wonder Chemical Co., New York, in a recent opening by the Post Office, Washington, D. C., submitted the low bid on 5,004 lbs. of metal polish at 6.18c.

Polishing Compound Award

S. C. Johnson & Son, Racine, Wis., was awarded a contract for 5,000 lbs. polishing compound at 9.75c lb., in a recent opening by the Army Air Corps for Wright Field, Ohio.

Soap Bids

The following low bids on miscellaneous supplies were submitted to the Printing Office, Washington, D. C., in a recent opening: Stahl Bros. Corp., Buffalo, 14,175 lbs. toilet soap, 12.48c; Colgate-Palmolive-Peet Co., Brooklyn, 90,000 lbs. of chip soap, 9.69c; Day & Frick Co., Philadelphia, 9,375 lbs. of grit soap, 3.78c; Procter & Gamble Distributing Co., Baltimore, 93,750 lbs. of toilet soap, 10.11c.

Saddle Soap Award

R. M. Hollingshead Corp., Camden, N. J., was awarded a contract for 10,000 lbs. of saddle soap, at 11.03c, in a recent opening by the Army for the Augusta Arsenal, Ga.

Panama Canal Bids

In a recent opening for the Panama Canal the following low bids were submitted: Swift & Co., Union Stock Yards, Chicago, 5,000 lbs. chip soap, $509 f.o.b., N. Y.; N. Brittingham & Sons, Philadelphia, 2,500 lbs. grit soap, $147.50; Colgate-Palmolive-Peet Co., Jersey City, 15,000 lbs. laundry soap, $990, and 15,000 lbs. salt-water soap, $799.50; Procter & Gamble Distributing Co., Baltimore, 7,000 cakes floating toilet soap, $98.84; Chemical Mfg. & Distributing Co., Easton, Pa., 75,000 lbs. soap powder, $3,037.50, 40,000 lbs. trisodium phosphate $2,316, and 8,000 lbs. scouring powder, $330.40.

HOME-MADE SOAP . . .

The OPA tells the housewife to make soap at home. The WPB says no. Between the two and all of the stuff being published on the burning question of home-made soap, there is brewing quite a controversy. We will inject ourself into the discussion in the next issue of SOAP & SANITARY CHEMICALS. Don't miss it!

Navy Bids

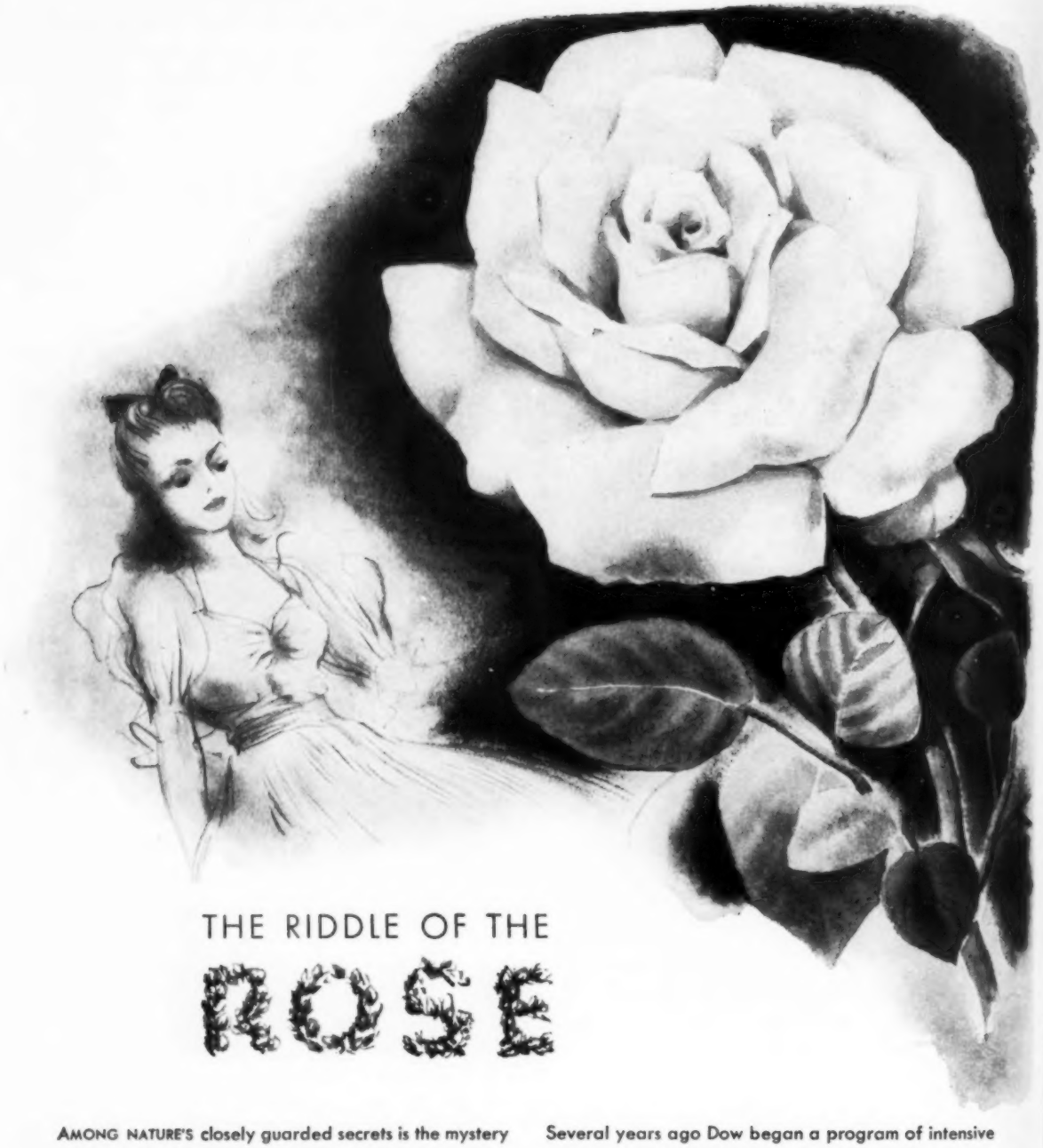
In a recent opening by the Navy Purchasing Office, New York, for miscellaneous supplies, the following low bids were submitted: Colgate-Palmolive-Peet Co., Jersey City, 360,000 lbs. toilet soap at 11c lb.; and Chase Chemical Co., Newark, N. J., 3,000 gals. cresolic disinfectant solution at 47c a gallon.

P & G Leads in Ad Total

Procter & Gamble Co., Cincinnati, led all other companies in the United States in advertising expenditures during 1941 by spending $9,401,353 in radio and $3,587,524 in magazines, according to figures recently published in *Printer's Ink*. Among other million dollar advertisers were: Colgate-Palmolive-Peet Co., $5,353,719 in radio and $1,457,298 in magazines; Lever Brothers Co., $4,499,837 in radio and $1,468,329 in magazines; American Home Products Co., $3,473,108 in radio; Bristol-Myers Co., $2,457,115 in magazines and $1,112,213 in radio; Jergens-Woodbury, $1,300,324 in magazines and $1,060,274 in radio; Lambert Co., $1,694,113 in magazines; and Swift & Co., $1,397,949 in magazines. Soaps and cleaners accounted for 2.7 per cent of the total magazine advertising investment during 1941, according to the Publishers' Information Bureau, Inc., New York, who made the study.

BIMS Hold Mid-Winter Party

The BIMS of Boston held their mid-winter dinner party at the Hotel Vendome, Boston, February 12. Among the features of the evening was a showing of the new American League Baseball picture, "Ninth Inning." Frank Shellenbach, coach of the Red Sox, presented sidelights on the film.



THE RIDDLE OF THE ROSE

AMONG NATURE'S closely guarded secrets is the mystery of the elusive flower odor. Since the beginning of modern chemistry, scientists have tried to solve this riddle. Progress has been made, to be sure. Chemists have isolated many of the constituents of essential oils. Yet, today, no one knows completely the secret of most floral odors—and a missing or misunderstood molecule often destroys an otherwise perfect formulation.

Several years ago Dow began a program of intensive research that has resulted in a steadily growing variety of synthetic aromatics. A selected group of specialists is now concentrating on the isolation and synthesis of important constituents of natural flower oils—still working to solve the old "riddle of the rose." The result: new ideas, new chemicals, to assure America of a reliable domestic source for aromatic materials.

DOW

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York City, St. Louis, Chicago, San Francisco, Los Angeles, Seattle, Houston

NEW TRADE MARKS

The following trade-marks were published in the February issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

FUZEE—This in solid letters describing metal cleaner. Filed by Turco Products, Inc., Los Angeles, Nov. 12, 1941. Claims use since Nov. 12, 1940.

SHOCKING—This in solid letters describing soap. Filed by Schiaparelli, Inc., New York, Nov. 29, 1941. Claims use since July 10, 1937.

MARBLITE—This in solid letters describing chemical cleaner. Filed by C. S. Welch Company, New York, Oct. 25, 1941. Claims use since April, 1940.

SPRING MORNING — This in script letters describing soap-filled bath pad. Filed by Charles Ederer, New York, Nov. 8, 1941. Claims use since May 8, 1941.

LISTERINE—This in outline letters describing shaving cream. Filed by Lambert Pharmacal Company, Wilmington, Del., Nov. 27, 1941. Claims use since Jan., 1938.

SCHIAPARELLI—This in script letters describing soap. Filed by Schiaparelli, Inc., New York, Nov. 29, 1941. Claims use since July 10, 1937.

PARABO—This in solid letters describing moth destroyer. Filed by R. H. Bogle Co., March 22, 1941. Claims use since Dec., 1941.

PIXIE—This in reverse letters describing household cleaners and polishes. Filed by General Brands Corp., New York, Aug. 7, 1941. Claims use since Mar. 22, 1941.

AVALON—This in script letters describing glass cleaner and soap flakes. Filed by Kroger Grocery & Baking Co., Cincinnati, Dec. 30, 1941. Claims use since Mar. 22, 1932.

MARVELOKS—This in solid letters describing shampoo. Filed by Antiseptol Company, Inc., Chicago, Feb. 13, 1941. Claims use since Apr. 17, 1936.

KLORO-KLENZ — This in solid letters describing household bleach. Filed Oct. 15, 1941 by Federated Foods, Inc., Chicago. Claims use since May 23, 1941.

BATHFRESH — This in script letters describing bubble bath. Filed by Schartz, Inc., Detroit, Nov. 24, 1941. Claims use since Nov., 1939.

PACKERS—This in outline letters describing olive oil shampoo. Filed by Packers Tar Soap, Inc., Mystic, Conn., Dec. 5, 1941. Claims use since Nov. 12, 1941.

PACKERS—This in outline letters describing pine tar shampoo. Filed by Packers Tar Soap, Inc., Mystic, Conn., Dec. 5, 1941. Claims use since Nov. 12, 1941.

SHEEN OF YOUTH—This in old English letters describing shampoo. Filed by Pine Coco Products, Inc., Dec. 17, 1941. Claims use since July 1, 1941.

ONDOLEA—This in solid letters describing shampoo. Filed by Ondolea Co., New York, Dec. 6, 1941. Claims use since July 1, 1941.

DAREDEVIL—This in solid letters describing bubble bath. Filed by Lehn & Fink Products Corp., Bloomfield, N. J., Jan. 9, 1942. Claims use since Nov. 28, 1941.

Trade Marks Granted

392,933. Degreasing solvent. American Colloid Corp., N. Y. Filed July 9, 1941. Serial No. 445,191. Published Sept. 30, 1941. Class 4.

392,967. Cleaner. General Vault Prods. Co., Cincinnati. Filed Sept. 2, 1941. Serial No. 446,734. Published Nov. 11, 1941. Class 4.

392,969. Soap. Quigley Co., New York. Filed Sept. 4, 1941. Serial No. 446,782. Published Nov. 11, 1941. Class 4.

393,060. Insecticides. Filed April 14, 1941. Robert Cheney Slater, Jacksonville, Fla. Published Nov. 18, 1941. Class 6.

393,062. Rust remover. Filed April 15, 1941. Ensign Products Co., Cleveland. Published Nov. 4, 1941. Class 6.

393,065. Metal cleaner. Filed May 6, 1941. General Chemical Co., New York. Published Nov. 4, 1941. Class 6.

393,143. Auto polish and cleaner. Filed Aug. 23, 1941. Thoro Products Co., Chicago. Published Nov. 18, 1941. Class 16.

393,169. Shampoo. Filed Sept. 11, 1941. Valentine Laboratories, Inc., Chicago. Published Nov. 4, 1941. Class 6.

393,189. Foot disinfectant. Filed Sept. 18, 1941. Crow Chemical Co., Hot Springs, Ark. Published Nov. 11, 1941. Class 6.

393,196. Deodorant. Filed Sept. 18, 1941. Drake Laboratories, Philadelphia. Published Nov. 18, 1941. Class 6.

393,200. Chemical cleaning compound. Filed Sept. 20, 1941. Epco Chemical Co., Quincy, Mass. Published Nov. 11, 1941. Class 6.

393,214. Fungicides. Filed Sept. 6, 1941. S. Pfeiffer Mfg. Co., St. Louis. Published Nov. 4, 1941. Class 6.

393,352. Wax polish and cleaner. Windsor Wax Co., New York. Filed Jan. 9, 1941. Serial No. 439,529. Published Nov. 25, 1941. Class 16.

393,428. Antiseptics, fungicides and disinfectants. Montanin Company, Inc., New York. Filed March 15, 1939. Serial No. 417,096. Published Sept. 16, 1941. Class 6.

393,431. Deodorant. Pharma-Craft Corporation, Louisville, Ky. Filed August 16, 1940. Published Oct. 22, 1940. Class 6.

Norda

Scarcity of floral oils . . .

Present dwindling supplies of natural floral essences emphasize the value of high quality substitutes.

Synthetic floral essences can be used to replace the natural oils with full satisfaction and marked success in numerous products,—toilet soaps, shampoos, shaving creams, powders, creams, and many others.

In fact, in many products the newer synthetic floral essences are to be *preferred* for the manner in which they reproduce the true fragrance of the living flowers in the finished product,—not to mention uniformity of quality and odor fidelity, and their economy under present conditions.

Let us tell you more about these newer substitutes as an answer to the growing scarcity of natural floral oils.

NORDA Essential Oil and Chemical Co., Inc.

Chicago Office
325 W. Huron St.

Los Angeles Office
2800 E. 11th Street

St. Paul Office
253 E. 4th St.

Toronto Office
119 Adelaide St., W.

New York Office
601 West 26th St.

Montreal Office
135 Commissioners St., W.

393,438. Detergent cleaning compound. Turco Products, Inc., Los Angeles. Filed Nov. 23, 1940. Serial No. 438,187. Published Jan. 7, 1941. Class 4.

393,439. Deodorant. Filed Dec. 17, 1940. Givaudan-Delawanna, Inc., New York. Published Feb. 18, 1941. Class 6.

393,450. Athlete's foot preparation. Ridgefield Chemical Co., Inc., New York. Filed April 28, 1941. Published Nov. 25, 1941. Serial No. 443,055. Class 6.

393,451. Bleaching fluid. Chlorine Solutions, Inc., Los Angeles. Filed May 2, 1941. Serial No. 443,184. Published June 24, 1941. Class 6.

393,454. Chemical emulsion for fungus diseases. Destruxol Corp., Ltd., Pasadena, Calif. Filed May 21, 1941. Serial No. 443,752. Published Nov. 4, 1941. Class 6.

393,456. Chemical preparation for cleaning rust and stopping leaks. Wham Products Corp., New York. Filed May 21, 1941. Serial No. 443,789. Published Nov. 25, 1941. Class 6.

393,484. Cleanser. Blue Dew Corp., Buffalo, N. Y. Filed Aug. 7, 1941. Serial No. 446,040. Published Dec. 2, 1941. Class 4.

393,494. Shampoo. Sales Affiliates, Inc., New York. Filed Aug. 21, 1941. Serial No. 446,439. Published Dec. 2, 1941. Class 6.

393,544. Chemical pads for treatment of insect bites. M. C. Laboratories, Inc., Coffeyville, Kansas. Filed Sept. 30, 1941. Serial No. 447,444. Published Nov. 25, 1941. Class 6.

393,562. Insecticides. Molitor Drug Co., St. Cloud, Minn. Filed Oct. 10, 1941. Serial No. 447,665. Published Dec. 9, 1941. Class 6.

393,567. Rug shampoo. Tandy W. Piatt, Chicago. Filed Oct. 13, 1941. Serial No. 447,762. Published Dec. 2, 1941. Class 4.

393,571. Scouring cleanser, Jewel Tea Co., Inc., Chicago. Filed Oct. 15, 1941. Serial No. 447,809. Published Dec. 2, 1941. Class 4.

393,644. Athlete's foot preparation. Filed May 28, 1941. Pierce Products Co., High Point, N. C. Published Dec. 16, 1941. Class 6.

393,651. Soap. Filed Aug. 2, 1941. Joseph Metrie, Milwaukee. Published Dec. 16, 1941. Class 4.

393,656. Bubble bath. Filed Aug. 13, 1941. C. S. Welch Co., New York. Published Dec. 16, 1941. Class 6.

393,668. Dentifrice. Filed Sept. 17, 1941. Cape Ann Laboratory, Gloucester, Mass. Published Dec. 16, 1941. Class 6.

393,677. Athlete's foot preparation. Filed Oct. 1, 1941. Mon Ray Chemical Co., Forest City, N. C. Published Dec. 16, 1941. Class 6.

393,688. Soaps. Filed Oct. 16, 1941. Elizabeth Arden Sales Corp., New York. Published Dec. 16, 1941. Class 4.

393,693. Antiseptic. Filed Oct. 29, 1941. Arnold A. Feist, V. M. D., St. Paul, Minn. Published Dec. 16, 1941. Class 6.

393,694. Rat and mouse bait. Filed Oct. 31, 1941. Anchor Products Co., Minneapolis, Minn. Published Dec. 16, 1941. Class 6.

Soap Committee Meets

(*from Page* 37)

and oils that go into soap making? To check government specifications on soaps which are or can be made by the small soap manufacturer with the view of recommending changes necessary to permit maximum glycerine recovery.

Sub-committee on Glycerine Recovery

Boiled settled soap manufacture.

Can special process soap such as textile, wire drawing, etc., be made by processes permitting the maximum glycerine recovery?

Is there an appreciable amount of glycerine lost when soaps are made by consumers, such as laundries, city and state penal institutions, cleanser and soap powder manufacturers?

Is there any way to get glycerine from any soap source not now developed?

This Committee should set a standard as to the reasonable maximum efficiency possible for soap manufacturers.

(1) Fats to crude glycerine
(2) Crude glycerine to refined glycerine

Since the maximum glycerine is dependent upon an adequate supply of raw material, the committee is requested to make such recommendations as it deems desirable in the interest of procuring and insuring the necessary supply.

To check government specifications on soaps which are or can be made by the boiled settled method of soap manufacture with the view of recommending changes necessary to permit maximum glycerine recovery.

The sub-committees and their personnel follow:

Glycerine Recovery—Homer D. Banta, Iowa Soap Co.; N. S. Dahl, John T. Stanley Co.; D. M. Flick, Armour & Co.; E. B. Hurlburt, J. B. Williams Co.; F. H. Merrill, Los Angeles Soap Co.; A. Roy Robson, Fels & Co.; W. Bodman of Lever Bros. Co.; W. Blair of Procter & Gamble Co., and A. Coulter of Colgate-Palmolive-Peet Co.

Fatty Acids—N. S. Dahl, John T. Stanley Co.; D. M. Flick, Armour & Co.; W. C. Hardesty, W. C. Hardesty Co.; E. A. Moss, Swift & Co.; and Werner G. Smith, Werner G. Smith Co.

Potash and Liquid Soaps—J. L. Brenn, Huntington Laboratories; H. Kranich, Kranich Soap Co.; Samuel J. Miller, DuBois Soap Co.; W. F. Pollnow, Vestal Chemical Co.; C. B. Solly, Harley Soap Co.; L. Webb, Jr., Hunnewell Soap Co.; and Russell Young, Davies-Young Soap Co.

Cold - Made and Semi - Boiled Soaps—D. M. Flick, Armour & Co.; W. C. Hardesty, W. C. Hardesty Co.; A. Haas, Newell-Gutradt Co.; E. B. Hurlburt, J. B. Williams Co.; J. S. MacIntosh, Holbrook Mfg. Co.; Werner G. Smith, Werner G. Smith Co.; and Russell Young, Davies - Young Soap Co.

Later a Glycerine Conservation and Statistical sub-committee will probably be added to the above list, all the appointments being made by George A. Wrisley, chief of the Soap and Glycerine Unit.

See Possible Bag Shortage

Possible shortages of osnaburg bags were forecast in a recent announcement that the Defense Supplies Corporation plans to build up stock piles of osnaburg for defense through an initial purchase of 200 million yards. It is believed that makers of bulk soaps or other products packed in osnaburg bags may need priority ratings to obtain the bags at some future date.

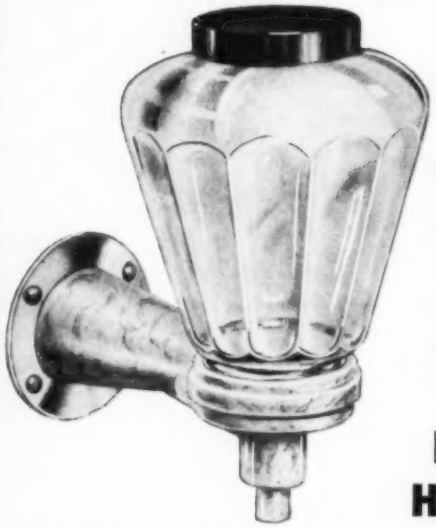
Introduce "Cameo" Dispensers

Cameo Cleanser Co., Chicago, recently began advertising "Cameo Cleanser" dispensers in southern California.

Pioneer* in Plastic

Two years ago we introduced the No. 21 ⟶ the **First** liquid soap Dispenser in **Plastic**

AN IMPROVEMENT over all other medium priced liquid soap Dispensers—an immediate best seller



AND NOW WE PRESENT

FIRST plastic push-up

⟵ No. 13-U

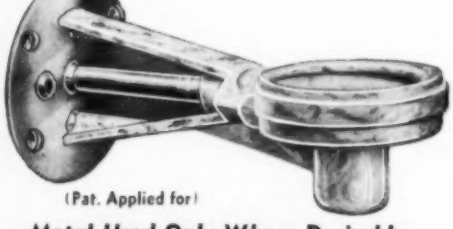
FIRST plastic pump

No. 14 ⟶

LOW PRICED HIGH QUALITY

Our No. 21 found tried and true, six months ago we introduced these beautiful low priced models. No drawing account for these supersalesmen, but drawing power for liquid soap sales. Clip the coupon below for samples. The proven dependability of Bobrick Dispensers in metal for 36 years is your guarantee of satisfaction with Bobrick Dispensers in plastic.

**Pioneer*: "To take the lead in; to go before and prepare the way."*



(Pat. Applied for)

Metal Used Only Where Desirable

Metal wall plate securely holds wall screws. Cannot crack or break. Metal rod supporting bracket insures rigidity.

Bobrick Manufacturing Corporation
15 East 26th St., New York, N. Y.

☐ Send samples of Bobrick's plastic line, with complete descriptive Literature.

Send sample of ☐ No. 21 ☐ No. 14 ☐ No. 13-U

Send .... doz. ☐ No. 21 ☐ No. 14 ☐ No. 13-U

Name .....

Address .....

RAW MATERIAL MARKETS

As of February 28, 1942

NEW YORK—Offerings of oils and fats used in the manufacture of soaps and sanitary products continued to be light throughout the month, with producers continuing to await further developments, especially in the matter of price ceilings. Even the raising of price ceilings on crude soybean and peanut oil to 3/4-cent above the October 1, 1941, price levels failed to bring out any offerings of these materials. Offerings of imported vegetable oils, coconut oil, palm oil and babassu oil, as well as many domestic oils and fats were scarce. Toward the latter part of the month, fats and oils price schedule No. 25, which was issued last August, was revoked by the OPA. This schedule was originally issued to prevent speculation, hoarding, and undue price rises in oils and fats and their products, and its revocation puts an end to the uncertainty that arose as to whether or not the 45-day limitation on forward sales of oils and fats products also applied to soaps.

Among other government orders issued during the month of interest to manufacturers of soaps and sanitary products, were one requesting a price ceiling on nicotine sulfate, and one placing diphenylamine under a complete allocation system (general preference order M-75). Numerous price advances took place among the essential oils used in soap making, while a few items, oil of peppermint, oil of anise, and oil of lemongrass, dropped to slightly lower price levels. Among the waxes, bees wax and candelilla became more expensive, while the price of carnauba waxes was reduced one cent a pound. Raw materials for the manufacture of insecticides became scarcer during the month, harder to obtain, and dearer. Prices of chemicals remained about the same as a month ago.

Animal Fats

Prices of greases and inedible tallow remained firm at ceiling levels throughout the month with offerings generally light. The bureau of the census, U. S. Department of Commerce, recently reported factory stocks of inedible tallow as 253,740,000 pounds at the end of 1941, as compared with 303,515,000 pounds at the end of 1940. Stocks of greases were reported as 105,815,000 pounds on December 31, 1941, as compared with 134,313,000 pounds on December 31, 1940. Early in February, a new ceiling price for cash lard was established in amendment No. 2 to fats and oils price schedule No. 53. This brought the permissible ceiling figure for cash lard in tierces up to 12.695 cents per pound. No change was made in the lard futures ceiling prices.

Vegetable Oils

Quotations are nominal on most of the vegetable oils used in soap making, coconut oil, soybean oil, peanut oil, corn oil, palm oil, and teaseed oil in the absence of offerings. Stocks of crude coconut oil on December 31, 1941, were 178,463,000 pounds as compared with 242,973,000 pounds on the same date in 1940; stocks of crude palm oil were 127,362,000 pounds on the last day of 1941, as compared with 147,725,000 pounds on the last day of 1940; stocks of crude soybean oil were 68,450,000 pounds on the last day of 1941, as compared with 62,167,000 pounds on the last day of 1940. With the market for copra stagnant on the West Coast ever since the fall of the Philippines, crushers are hoping the South Seas copra can soon be processed for domestic consumption.

Insecticide Materials

Prices of pyrethrum powder and pyrethrum extract, due to shipping conditions in the South Atlantic, were advanced sharply during the month. Some suppliers are currently showing a disinclination to quote on pyrethrum in the open market, and are reserving their supplies for contract customers. Other sellers, however, are quoting insect powder at 29 cents a pound, and pyrethrum extract, 20 to 1, at $5.70 to $5.75 a gallon. Quotations on rotenone-bearing roots are nominal, with no further supplies of derris in the offing and a strain put on the cube producing regions. Current prices are about 40 to 41 cents a pound on the 5 per cent powdered materials. The government has requested all suppliers of rotenone bearing materials to stop selling the materials for use in the manufacture of household insecticides or for any purposes other than for use as agricultural insecticides. Powdered red squill prices remain about the same as a month ago at 79 to 80c a lb.

—— • ——

New Soap-Borax-Comp. Specs.

A new Federal specification for soap-borax-compound, for dispensers, Fed. Spec. P-S-628, was approved January 20 by the director of procurement to become effective July 1, 1942. The specification covers one type of soap and borax compound, having the following general requirements: it shall be a uniform mixture of a thoroughly saponified soap and borax ($Na_2B_4O_7 \cdot 10H_2O$); shall be uncolored and mildly perfumed, unless otherwise specified; shall be a uniform free-flowing, noncaking powder; and shall lather freely in cold, soft water.

We have a fine selection of

PERFUME BASES

for SOAP

Contact

DODGE & OLCOTT COMPANY

180 Varick Street **New York, N. Y.**

BOSTON : CHICAGO : PHILADELPHIA : ST. LOUIS : LOS ANGELES

PLANT AND LABORATORIES: BAYONNE, N. J.

D&O

ESTABLISHED IN 1798

SARGENT'S DRYER and CHILLING ROLL

One of the latest Sargent installations, a unit capable of delivering 1300 pounds of extremely thin soap chips in 40 feet. Economy of operation and floor space are distinct features of this equipment. Mechanical refinements, compactness and accessibility are inherent characteristics. Write for complete details and specifications.

C. G. SARGENT'S SONS CORPORATION • GRANITEVILLE, MASSACHUSETTS

RAW MATERIAL PRICES

(As of February 28, 1942)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C.P., drums	lb.	$ .08½	$ .09
Acid, Boric, bbls., 99½%	ton	106.00	128.00
Cresylic, drums	gal.	.81	.86
Low boiling grade	gal.	.81	.86
Muriatic, C. P., carboys	lb.	.08	—
Oxalic, bbls.	lb.	.11¼	.14¼
Adeps Lanae, hydrous, drums	lb.	.32	.34
Anhydrous, drums	lb.	.33	.35
Alcohol, Ethyl, drums	gal.	8.19	8.25½
Complete Denat., SD1, dms., ex.	gal.	.60	.65
Alum. Potash lump, bbls.	lb.	.04½	—
Ammonia Water, 26°, drums	lb.	.02¼	.02½
Ammonium Carbonate, tech., drums	lb.	.08¼	.09¼
Bentonite	ton	25.00	51.00
Bleaching Powder, drums	100 lb.	2.25	3.35
Borax, pd., bbls., bags	ton	50.00	75.00
Carbon Tetrachloride, car lots	gal.	.73	1.17
L. C. L.	gal.	.80	1.27
Caustic, see Soda Caustic, Potash Caustic			
China Clay, filler	ton	7.60	16.00
Cresol, U.S.P., drums	lb.	.11	.11¾
Creosote Oil	gal.	.141	.15½
Feldspar, works	ton	30.00	35.00
Formaldehyde, bbls.	lb.	.05¾	.07¼
Fullers Earth	ton	8.50	15.00
Glycerine, C.P., drums	lb.	.18¼	.19¼
Dynamite, drums	lb.	.18¼	.18¾
Saponification, drums	lb.	.12¾	.14¾
Soap lye, drums	lb.	.11½	—
Hexalin, drums	lb.	.23	—
Lanolin, see Adeps Lanae.			
Lime, live, bbls.	ton	6.25	13.00
Mercury Bichloride, drums	lb.	2.24	2.39
Naphthalene, ref. flakes, bbls.	lb.	.08	—
Nitrobenzene (Mirbane) drums	lb.	.08	.09
Orthodichlorbenzene	lb.	.07½	.08½
Paradichlorbenzene, drums	lb.	.13	.15
Petrolatum, bbls. (as to color)	lb.	.03½	.08
Phenol (Carbolic Acid) drums	lb.	.12½	.14¼
Pine Oils, drums	gal.	.74	1.10
Potash, Caustic, solid	lb.	.06¼	.06¾
Flake, 88-92%	lb.	.07	.07¼
Liquid, 45% basis	lb.	.02⅞	.03¼
Potassium Carbonate, solid	lb.	.06½	.06¾
Liquid	lb.	.03	.03⅛
Pumice Stone, coarse	lb.	.03½	.04¾
Rosins (net wt., ex dock, New York)—			
Grade D to H	100 lb.	3.84	3.88
Grade I to N	100 lb.	3.88	4.12
Grade WG to X	100 lb.	4.83	4.95
Wood, ex. dock	100 lb.	3.12	4.03
Rotten Stone, dom., bags	lb.	.02½	.04
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04½
Olive Castile, bars	lb.	.28	.38
Olive Castile, powder	lb.	.33	.40
Powdered White, Neutral	lb.	.18	.24
Olive Oil Foot, bars, 68-70%	lb.	—	—
Green, U.S.P.	lb.	.09	.10
Tallow Chips, 88%, car lots	lb.	.11	.11¾
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.05	1.45
Car lots, in bulk	100 lb.	.90	.95
Soda Caustic, cont., wks., solid	100 lb.	2.30	—
Flake	100 lb.	2.70	2.95
Liquid, tanks, 47-49%	100 lb.	1.92½	1.95
Soda Sal., bbls.	100 lb.	1.10	1.30
Sodium Chloride (Salt)	ton	14.20	18.00
Sodium Fluoride, bbls.	lb.	.08	.09¼
Sodium Hydrosulfite, bbls.	lb.	.17	.18
Sodium Metasilicate, anhyd.	100 lb.	4.00	5.30
Granulated	100 lb.	2.50	3.55
Sodium Pyrophosphate	100 lb.	5.25	6.80
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.40	1.80
Tar Acid Oils, 15-25%	gal.	.27½	.33½
Triethanolamine	lb.	.18	.20
Trisodium Phosphate, bags, bbls.	100 lb.	2.70	4.30
Zinc Oxide, lead free	lb.	.07¼	.07¾

Oils — Fats — Greases

Babassu, tanks, futures	lb.	—	Nom.
Castor, No. 1, bbls.	lb.	.14	.14½
No. 3, bbls.	lb.	.13¾	.14¼
Coconut (without excise tax)			
Manila, tanks, N. Y.	lb.	—	—
Tanks, Pacific Coast, futures	lb.	—	—
Copra, bulk, coast	lb.	—	—
Corn, tanks, West	lb.	.12¾	—
Cottonseed, crude, tanks, mill	lb.	.12½	.12⅝
PSY, futures	lb.	—	—
Fatty Acids—			
Corn Oil, tanks, Chicago	lb.	.15	.15¼
Coconut Oil, tanks, Twitchell, Chi.	lb.	.17½	.18
Cotton Oil, tanks, Chicago	lb.	.13¾	.14
Settled soap stock, Chicago	lb.	.03⅞	.04
Boiled soap stock, 65%, Chi.	lb.	.04⅞	.05
Foots, 50%, Chicago	lb.	.03⅞	.04
Red Oil, bbls., dist. or sapon.	lb.	.12¾	.14
Tanks	lb.	.12	.12¼
Stearic Acid, saponif.			
Double pressed	lb.	.15¼	.16¾
Triple pressed	lb.	.18	.19½
Greases, choice white, tanks	lb.	.0971¼	—
Yellow	lb.	.0929⅝	—
Lard, city, tubs	lb.	.12¼	.12⅜
Linseed, raw, bbl.	lb.	.1190	.1270
Tanks, raw	lb.	.1100	.1120
Olive, denatured, bbls., N. Y.	gal.	4.40	4.50
Foots, bbls., N. Y.	lb.	.19½	.20
Palm, Sumatra, cif. New York, Tanks	lb.	—	—
Palm, kernel, f.o.b. San F.	lb.	—	—
Peanut, crude, tanks, mill	lb.	.13	Nom.
Soya Bean, domestic, tanks, crude	lb.	.12¼	Nom.
Stearin, oleo, bbls.	lb.	.1054	—
Tallow, special, f.o.b. N. Y.	lb.	.0957⅜	—
City, ex. loose, f.o.b. N. Y.	lb.	.0971¼	—
Teaseed Oil, crude	lb.	.30	Nom.
Whale, refined	lb.	.1070	Nom.

PEER no. 50

TOP Value in a LOW Price
Liquid Soap Dispenser
. . . IMMEDIATE DELIVERY

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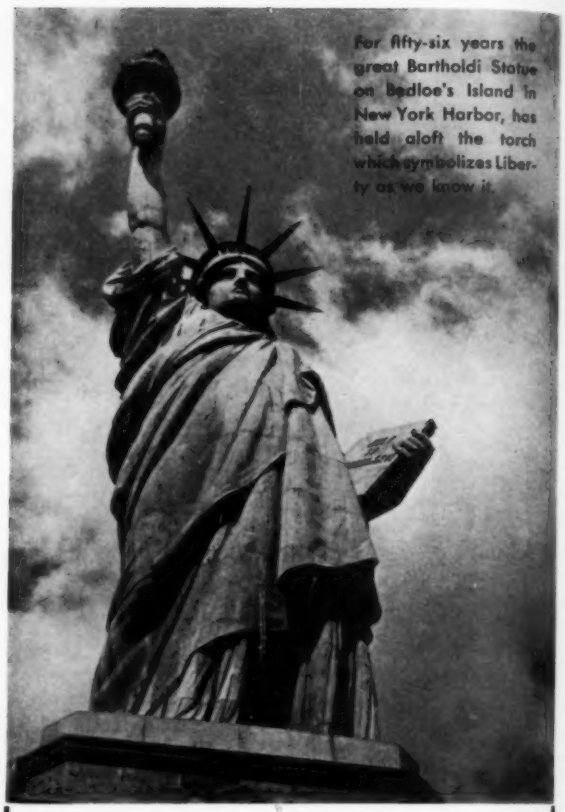

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Almond, Bitter, U.S.P.	lb.	$3.50	$3.75
Bitter, F.F.P.A.	lb.	4.75	5.00
Sweet, cans	lb.	2.45	2.50
Anise, cans, U.S.P.	lb.	2.25	2.30
Bay, 55-66% phenols, cans	lb.	1.65	1.70
Bergamot, coppers	lb.	32.00	Nom.
Artificial	lb.	2.75	9.25
Birch Tar, rect., cans	lb.	—	—
Crude, cans	lb.	—	—
Bois de Rose, Brazilian	lb.	5.00	5.25
Cayenne	lb.	—	—
Cade (juniper tar), cans	lb.	.80	.95
Cajeput, tech, drums	lb.	1.75	Nom.
Calamus, cans	lb.	—	—
Camphor, Sassy, drums	lb.	.40	Nom.
White, drums	lb.	.43	Nom.
Cananga, native, cans	lb.	15.00	15.25
Rectified, cans	lb.	15.25	15.50
Caraway Seed	lb.	15.00	Nom.
Cassia, Redistilled, U.S.P.	lb.	11.00	Nom.
Cedar Leaf, cans	lb.	1.10	1.40
Cedar Wood, light, drums	lb.	.95	Nom.
Citronella, Java, drums	lb.	1.50	Nom.
Citronella, Ceylon, drums	lb.	1.35	Nom.
Clove, U.S.P., cans	lb.	1.60	1.70
Eucalyptus, Austl., U.S.P., cans	lb.	.83	.88
Fennel, sweet, cans	lb.	2.50	2.75
Geranium, African, cans	lb.	20.00	Nom.
Bourbon, cans	lb.	20.00	Nom.
Turkish (Palmarosa)	lb.	5.25	5.50
Hemlock, cans	lb.	.95	1.15
Lavender, 30-32% ester, cans	lb.	—	—
Spike, Spanish, cans	lb.	2.85	3.10
Lemon, Ital., U.S.P.	lb.	5.50	Nom.
Cal.	lb.	3.25	—
Lemongrass, native, cans	lb.	3.00	3.50
Linaloe, Mex., cases	lb.	3.50	3.75
Nutmeg, U.S.P., cans	lb.	3.00	3.25
Orange, Sweet, W. Ind., cans	lb.	4.75	6.00
Italian cop	lb.	8.00	Nom.
Distilled	lb.	1.70	—
California, expressed	lb.	3.00	—
Origanum, cans, tech	lb.	2.85	2.90
Patchouli	lb.	5.50	6.00
Pennyroyal, dom.	lb.	2.50	2.65
Imported	lb.	2.40	2.50
Peppermint, nat., cans	lb.	5.40	5.65
Redis., U.S.P., cans	lb.	5.90	6.15
Petitgrain, S. A., cans	lb.	1.70	1.75
Pine Needle, Siberian	lb.	2.60	2.70
Rosemary, Spanish, cans	lb.	1.85	1.90
drums	lb.	1.80	1.85
Sandalwood, dom., dist., U.S.P.	lb.	5.85	6.00
Sassafras, U.S.P.	lb.	1.05	1.20
Artificial, drums	lb.	—	—
Spearmint, U.S.P.	lb.	3.25	3.50
Thyme, red, N. F.	lb.	1.85	2.20
White, N. F.	lb.	1.95	2.35
Vetiver, Java	lb.	28.00	Nom.
Ylang Ylang, Bourbon	lb.	20.00	24.00

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.55	$1.60
Amyl Cinnamic Aldehyde	lb.	1.90	2.00
Anethol	lb.	1.20	1.35
Benzaldehyde, tech.	lb.	.45	Nom.
N. F. VI	lb.	.85	.95
Benzyl, Acetate	lb.	.59	Nom.
Alcohol	lb.	.63	.75
Citral	lb.	4.50	5.50
Citronellal	lb.	3.50	Nom.
Citronellol	lb.	3.70	Nom.
Citronellyl Acetate	lb.	—	Nom.
Coumarin	lb.	2.75	3.25
Diphenyl oxide	lb.	.43	.50
Eucalyptol, U.S.P.	lb.	1.50	1.60
Eugenol, U.S.P.	lb.	2.75	2.80
Geraniol, Soap	lb.	1.10	1.50
Other grades	lb.	1.50	3.50
Geranyl Acetate	lb.	3.70	4.30
Heliotropin	lb.	4.00	4.10
Hydroxycitronellal	lb.	—	—
Indol, C. P.	lb.	28.00	30.00
Ionone	lb.	2.75	3.95
Isoborneol	lb.	.81	.90
Iso-bornyl acetate	lb.	.80	.95
Iso-Eugenol	lb.	3.15	4.25
Linolool	lb.	6.50	7.50
Linalyl Acetate	lb.	5.50	Nom.
Menthol, natural	lb.	13.00	13.50
Synthetic, U.S.P.	lb.	—	—
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	—	—
Paracresol	lb.	2.50	2.65
Salicylate, U.S.P.	lb.	.35	.40
Musk Ambrette	lb.	3.85	4.20
Ketone	lb.	3.90	4.35
Xylol	lb.	1.15	1.55
Phenylacetaldehyde	lb.	5.00	Nom.
Phenylacetic Acid	lb.	1.85	Nom.
Phenylethyl Alcohol	lb.	2.10	2.50
Rhodinol	lb.	30.00	35.00
Safrol	lb.	1.60	1.75
Terpineol, C.P., drs.	lb.	.33	—
Cans	lb.	.36	—
Terpinyl Acetate, 25 lb. cans	lb.	.88	1.00
Thymol, U.S.P.	lb.	3.00	—
Vanillin, U.S.P.	lb.	2.35	2.75
Yara Yara	lb.	1.80	1.85

Insecticide Materials

Insect Powder, bbls.	lb.	.29	—
Pyrethrum Extract			
5 to 1	gal.	1.45	1.50
20 to 1	gal.	5.70	5.75
30 to 1	gal.	8.50	8.55
Derris, powder—4%	lb.	.37	Nom.
Derris, powder—5%	lb.	.40	Nom.
Cube, powder—4%	lb.	.37	Nom.
Cube, powder—5%	lb.	.40	Nom.
Squill, red, dried	lb.	.79	.80

Waxes

Bees, white	lb.	.61	—
African, bgs.	lb.	.49	.50
Refined, yel.	lb.	.59	.60
Candelilla, bgs.	lb.	.38	—
Carnauba, No. 1, yellow	lb.	.87	.88
No. 2, N. C.	lb.	.82	.83
No. 3, Chalky	lb.	.75	.76
Ceresin, yellow	lb.	.13½	.18
Montan Wax, bags	lb.	.45	.46
Paraffin, ref., 125-130	lb.	.0520	.0560

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PRODUCTION SECTION

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, Oil & Fat Industries.

Rosin In Toilet Soaps

IN the present shortage of coconut oil which may become a complete dearth of this oil before the war is over, the suggestion has been made by an old-timer in the soap business with many years experience both here and in Europe that the use of a small percentage of rosin in milled toilet soaps where the coconut oil is cut to one-third or one-quarter of present content, may aid in solving the problem of lather. According to J. Schwarzwalder for many years with the Lightfoot Schultz Company, Hoboken, N. J., rosin in small amounts has been an ingredient of many of the best European toilet soaps, even some of the fine French soaps which were exported to the American market before the war. He had the following comments to make recently regarding the use of rosin:

"The principal fatty raw material for toilet soap is tallow which we have in abundance in the United States. But coconut oil, always imported, is scarce and will probably become scarcer. Some other oil or means must be found to replace coconut oil and to extend our supplies as far as possible. For example, most of the toilet soaps on the market contain from 10 to 20 per cent of coconut oil. If this coconut oil were reduced to 5 per cent, the resulting soap would not lather freely but it might have better qualities in other ways, such as it might not be as harsh on the skin. The use of a small percentage of W. W. rosin would aid considerably in overcoming the lack of a quick lather due to the reduction in coconut oil and the yellowing effect in white soaps would not be great and might be overcome to some extent by a slight increase in the amount of white zinc or titanium pigment.

In the hard water sections of the country, a tallow soap containing only five per cent of coconut oil would cause difficulty in securing a good lather. The addition of rosin helps to increase solubility in hard water and to give a better and quicker lather. The lather of a toilet soap of this kind containing rosin is not as profuse as the regular soaps with a higher percentage of coconut oil, but the lather is greater and of a better character than the same type of soap without the rosin. In an emergency, it does help to improve the soap where the coconut oil must be cut down. The rosin also acts as a stabilizer and such a soap rarely develops rancidity if it is properly made.

Soaps of this kind can be produced in 150,000 pound batches or more and complete saponification can be obtained within two to three hours with an unsaponified saponifiable practically nil and with a free alkali not in excess of 0.04 per cent. Where W. W. rosin is used and properly processed, the resulting soap will be white,—not snow white,—but with no more of a yellowish tint than soap made from an unbleached tallow.

With the country at war, the matter of a snow-white soap is not as important as it is perhaps at other times. What is needed most of all is a toilet soap which will be for all practical purposes a good white color and which will lather fairly well under adverse conditions. When we consider that the great majority of the imported French soaps that for years commanded very high prices on the American market were seldom snow-white but cream and sometimes even a light tan due to the large percentage of perfumes and fixatives which they contained, the American demand for a snow-white soap is difficult to explain. The finish and texture of toilet soap containing small amounts of rosin are equal in every way to regular

tallow-coconut soaps, and the difference in color would probably never be noticed by the average consumer. The fact that a soap with a reduced content of coconut oil is a milder soap might on the other hand be to the liking of most consumers especially during cold weather.

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Search for Substitute Oils

Substitutes are being developed and tried for sulfonated olive, teaseed, palm and coconut oils, mostly as corn, cottonseed, peanut and soybean oils, especially in blends. The so-called synthetic oils prepared by rearrangement and reesterification of fatty acids are very good; hydrogenation helps them. In wool processing a mixture of a fairly heavy mineral oil and coconut oil is a promising substitute for olive oil. Cation-active compounds, amino condensates, and similar materials are being used. Tall oil is promising in soaps and emulsions because of low titer fatty acids. Textile World **92,** 58 (1942).

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Stable Emulsions

Stable emulsions are made by using as emulsifying agent an inorganic metallic gelatinous hydroxide, and adding to the emulsifying agent a substance which is a surface-tension reducer or which produces a surface-tension reducer by reaction with the material to be emulsified. The amount of surface-tension reducer to be added is very small compared with the amount of the gelatinous hydroxide or oxide. Alexander King. British Patent No. 519,769.

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Oil Refining

Impurities are removed from an oil by adding to the oil a decolorizing agent in the form of a solid adsorbent and removing the suspended matter by a process of electrostatic precipitation similar to that used for removing suspended particles from gases and vapors. J. Bibby & Sons, Ltd., Sturtevant Engineering Co., Ltd., Austin Ibison and Herbert W. Wagner. British Patent No. 520,233.

Textile Treatment Problems

The impact of the war has seriously affected the quantities of trichloroethylene and perchloroethylene available for drycleaning purposes, hence methods of solvent recovery for plants using these solvents are of the greatest importance. In this connection, a simple steam distillation still, designed by the National Research Council laboratories at Ottawa some time ago for use with filter and still sludges, serves a useful purpose.

An investigation of possible substitutes for various types of fluoride materials such as sodium and ammonium fluorides and silicofluorides, used by the laundry industry as sours, is now under way in the Ottawa laboratory.

Considerable interest attaches to the development of suitable processes for inhibiting the growth of mildew, and also in setting up methods for testing the efficacy of such treatments when applied to the various types of cotton textiles designed for outdoor use by the armed services.

In testing the efficiency of antimildew preparations, there is a choice of two techniques. Burial of the treated sample in earth plots, with subsequent determination of tensile-strength loss, has been widely used in Great Britain and other temperate climates. Unfortunately it is difficult to obtain reproducible results by this method, owing to the varying degrees of activity of the soil organisms as affected by temperature and other factors. For this reason it is usually found preferable to make use of a single cellulose-active organism operating under rigidly controlled conditions. Use has therefore been made of one or other of the various cellulose-active types of fungi, the one used in this laboratory being *Chaetomium globosum*. The standard bacteriological technique of sterilization, inoculation and incubation is employed. Absence of growth on the sample after two weeks' incubation indicates satisfactory mildew resistance.

It may be mentioned briefly in this connection that certain types of tarpaulins are required to be not only mildewproof but also waterproof and flameproof. The necessary effect is usually obtained by the use of a pigmented wax composition to impart waterproofness, a copper salt for mildew resistance, and a chlorinated naphthalene derivative of high molecular weight to impart flame resistance. C. H. Bayley. Canadian Chem. & Process Industries **26,** 47-50 (1942).

Fatty Acid Determination

The loss of fatty acids from coconut fat during analysis is not caused by the volatility of the acids but by their solubility in water, especially in the presence of alcohol. To avoid this loss, add 5 cc. of 25 per cent hydrochloric acid to a 5-gram sample of commercial soap, keep at 100° C. until the fatty acids have separated out, add 50 cc. of naphtha with a boiling range of 60-70° C, dissolve the acids by shaking and let stand until the solution is clear. Pipet out 25 cc. of solution, evaporate the solvent and dry. Soaps filled with clay are extracted for 3 hours with alcohol and the residue after evaporation of the alcohol treated as above.

A fast but less accurate method is to extract 2 grams of soap with 20 cc. of alcohol for 10 minutes, add 50 cc. of naphtha, 10 cc. of 25 per cent hydrochloric acid and 30 cc. of water, mix and evaporate 25 cc. of the clear solution. J. Grossfeld. *Chem.-Ztg.* **65,** 153-4 (1941); through *Chem. Abs.*

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Soap Cream

A washing composition contains the following:

Soap	14 lbs.
Creolin	1 teaspoon
Lye	¼ teaspoon
Olive Oil	1½ pint
French process rose perfume	7 oz.
Oil Rose compound	4 oz.
Vermilion color	1 teaspoon
Hydrogen peroxide	¾ pint
Pumice powder	1-12 lbs.
Water	25 qts.

Frank Colosimo. Canadian Patent No. 402,141.

Soap Builder Combinations

STANDARD launderometer studies were made to compare the results obtained with soap plus various combinations of soap builders, in different concentrations. A wide distribution of effective compounds was obtained with soap plus a single builder used in soft water. In hard water, tetrasodium pyrophosphate, trisodium phosphate and metasilicate appeared best in at least two of the three concentrations used. The silicates decreased in efficiency from metasilicate to 1:2 silicate to 1:3.3 silicate.

In the combination of tetrasodium pyrophosphate and silicates with soap, optimum soil removal was obtained when the proportion of tetrasodium pyrophosphate was greater than that of the other component. Metasilicate or 1:2 silicate combined with tetrasodium pyrophosphate produce washing results superior to those with either component alone. In considering combinations for household soaps, only the 1:2 and 1:3.3 silicates would be useful with a ratio of soap to builder of 70:30 or 60:40, because of the high pH values produced by metasilicate. A soap-builder combination of 90:10 would doubtless permit inclusion of metasilicate.

In the combination of trisodium phosphate with silicates, in soft water a 2:1 ratio of phosphate to 1:3.3 silicate produced maximum effectiveness. The combinations were all more efficient than one component alone. In hard water no pronounced differences appeared. In general, pH values for these combinations are high.

For combinations of phosphates with soda ash, in soft water no major differences between soda ash-tetrasodium pyrophosphate and soda ash-trisodium phosphate were found except at 0.1 per cent concentration. At the 2:1 ratio trisodium phosphate was superior in soft water while at the 1:2 ratio, tetrasodium pyrophosphate was superior. In hard water tetrasodium pyrophosphate produces results markedly superior to those with trisodium phosphate. Even at the higher soda-ash content, the pH values for the tetrasodium pyrophosphate combinations are not greater than 10.6 with a 70:30 soap builder mixture.

When three builders were used with soap in various combinations of soda ash, silicates and phosphates, the combination of tetrasodium pyrophosphate, trisodium phosphate, and 3.3 silicate, was the best of the five tested. However, the detergency produced by this combination of three builders with soap was no greater than that produced by the best of the binary mixtures tested. It is possible that variation of the 1:1:1 ratio of the builders might have given slightly different results, but it is doubtful that any marked increase in detergency would have been produced. Possibly better control of alkalinity and lower cost can be obtained with ternary mixtures. J. C. Harris, J. R. Eck and W. W. Cobbs. *Oil & Soap*, **19,** 3-13 (1942).

Fat Splitting Methods

Two methods for the splitting of fats and oils were compared. Lipase, the fat-splitting enzyme, was prepared from ungerminated castor seeds and used to hydrolyze coconut oil. The most satisfactory preparation of lipase yielded only 50 per cent hydrolysis.

In the Twitchell process with tallow as the substrate, 96 per cent conversion was obtained with 1 per cent of fat-splitting reagent in 24 hours. The naphthalene reagent was the most efficient. Increasing the concentration of the reagent from 1 to 2 per cent did not accelerate hydrolysis to any appreciable extent. A small amount of sulfuric acid was found to be essential, which corroborates the results of previous workers. Removal of the glycerine liquor when the reaction rate had slowed down, and replenishing the catalyst, shortened the total conversion period to a great extent. The fatty acids and glycerine prepared were light in color and of very good quality. S. N. Basu. *J. Indian Chem. Soc., Ind. & News Ed.* **4,** 113-19 (1941); through *Chem. Abs.*

Dehydration Studies

The amounts of water that can be removed from several hydrated salts were determined in the presence of a number of water-insoluble, organic liquids as distillation media. For example, washing soda, Na_2CO_3, $10H_2O$, was reduced to the dihydrate in boiling methylene chloride, but to the anhydrous salt in boiling benzene. This has analytical significance, as in applying the distillation method for the determination of moisture in soaps and soap powders containing hydrated salts as fillers and builders, the analyst cannot always assume a completely dehydrated residue. He must take into account the actual salt present and the state of its dehydration in respect to the distillation medium. Also on knowing the degree of dehydration obtainable with a selected distillation medium, it is possible to determine the original state of hydration of many normally hydrated crystals that have lost a portion of their water of crystallization through drying. R. B. Trusler. Oil & Soap **19,** 1-3 (1942).

Testing Cleaning Liquors

Cleaning liquors can be tested for probable cleaning action in three ways: Determine the alkalinity by conductivity measurements. Determine emulsifying strength by measuring the stability of lather in seconds. Determine impurities by measuring the volume of sediment deposited. With a knowledge of these three factors, the cleaning liquors can be brought to the proper effectiveness by adding water, settling out and draining off solid impurities, and adjusting the alkalinity. James H. Gravell. German Patent No. 702,842.

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Installed together these two soap machines comprise a complete cutting outfit.

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1 - HOUCHIN AUTOMATIC POWER SLABBER —

slabs the soap, ejects the slabbed frame and returns head to slabbing position to receive the next frame.

Every part of this machine is constructed of iron or steel, and is arranged for either belt or individual motor drive, and

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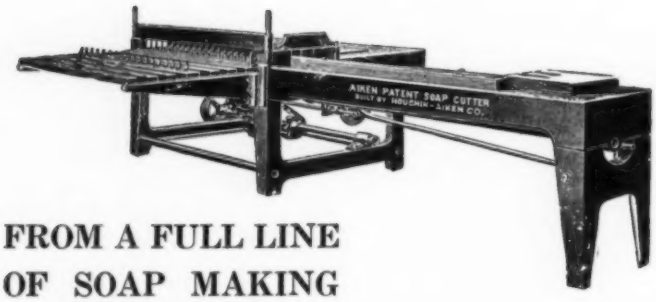
2 - THE HOUCHIN AUTOMATIC POWER CUTTING TABLE



will cut soap for oblong, oval or octagon cakes. Heads containing the cutting wires are easily removed when it is desired to change the size or shape of the cakes. Capacity 60 to 100 frames of soap per day.

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Floating Soap

A process for producing a floating soap having the desirable qualities of a milled soap of compact structure and fine texture, resulted in a soap possessing poorer lathering properties than soap produced from the same base by the normal milling and plodding processes. If a minor proportion of a potash soap is added, the reduction in lathering properties is overcome and an excellent toilet soap produced.

Preferably from 5 to 15 per cent of potash soap is prepared and simultaneously blended with the soda soap in the crutcher. The soda soap as it comes from the pan is pumped into the crutcher and the calculated amount of coconut oil crutched into the soap at 85° C. The caustic potash is then added gradually to the crutcher-mix with sufficient water to bring the total moisture content to about 30 per cent. The temperature is raised to 95° C. and crutching continued for 10 minutes. The alkalinity is adjusted if necessary.

Reduction of moisture content from 30 per cent to a value between 25 and 8 per cent can readily be carried out. A convenient method is to run the mix from the crutcher onto chilling rolls, from which the chilled and solidified soap is scraped off in the form of shreds or ribbons and conveyed to the usual soap dryer for reduction to the desired value. The shreds or ribbons are then fed to a converter where air or other compatible gas may be incorporated (Pease, U. S. Patent No. 2,048,286), in which the soap is intensely agitated at 65-125° C. and a pressure not exceeding 100 pounds per square inch, the soap being here reduced to a plastic state. The well worked mass is released into some form-imparting means, where it is cooled. Finally, the solidified soap is removed and cut into bars or cakes.

The finished product, whether aerated or not, has the firmness and fine texture of the best milled soaps. In addition the product, unlike milled soap, may be a floating soap, and has a homogeneous structure free from laminations, with but little tendency to swell or crack when left in water. Lever Bros. & Unilever Ltd. British Patent No. 539,718; through *Perfumery & Essential Oil Record* **32,** 338-9 (1941).

Soap Effect on Skin pH

The pH values of the hand and arm skin were determined before and after cleaning with several types of soaps and detergents, and the time necessary for the return of pH to the original value was recorded. For the ordinary and pharmaceutical soaps the increase of pH was 2.0-2.5 units and the time required to reach the original value about 24 minutes. With soaps containing pectin substances and with sulfonic acid soaps, the increase was only 0-0.6 pH unit and the corresponding time 0-9 minutes; these soaps have less effect on skin pH. Giuseppe Fachini. *Riv. ital. essenze profumi, piante offic., olii vegetali, saponi* **23,** 273-8 (1941).

Olive Oil Unsaturation

The triolein content of Palestine olive oil is about 30 per cent, while only about 5 per cent is present in Italian olive oil. About 25 per cent of the Palestine oil and about 45 per cent of the Italian oil consists of glycerides which contain a linoleic group, mainly linoleodiolein. *J. Soc. Chem. Ind.* **60,** 259-62 (1941).

Moisture Determination

To determine moisture in soft soaps, the following provides a simple and quick procedure: Weigh a Pyrex glass petri dish with cover and a copper wire bent in the shape of the letter "S." Remove the cover, place about 2 grams of soft-soap sample in the dish and spread out evenly with a small spatula. Insert the wire between dish and cover to allow subsequent escape of water vapor, and reweigh as quickly as possible. Place in a vacuum oven and heat for 30 minutes at 100° C. under 15-20 in. of vacuum. Any froth is caught on the inner surface of the cover. After a half hour, cool in a desiccator and again weigh. Loss in weight represents moisture. Morris C. Matt. *The Chemist Analyst* **30,** 79-80 (1941).

Petroleum Detergents

Detergents of good wetting, washing and emulsifying properties are obtained by treating a gas-oil petroleum fraction, for example a Pennsylvania gas oil boiling at 255-320° C., with a mixture of sulfur dioxide and chlorine, both in gaseous form, preferably in the presence of actinic light at 40-100° C. The product is hydrolyzed with caustic soda solution at 100° C. and preferably contains one or more chlorine atoms in addition to the sulfonyl group, so that a sulfonate is obtained without removing the chlorine substituents. Colgate-Palmolive-Peet Co., J. Ross and D. J. Potter. British Patent No. 538,408.

Continuous Saponification

In a continuous process for the manufacture of soap, proportioned streams of saponifying agent and of material to be saponified are mixed and caused to flow through an elongated zone where the mixture is heated to a temperature sufficient to cause substantially complete saponification, while maintaining the temperature below that value at which discoloration due to traces of unsaponified material might result. The resulting soap mixture containing soap, glycerine, and traces of unreacted saponifiable material is caused to flow as a stream through a mixing zone where it is intimately mixed to produce a completely saponified soap. The temperature is then raised sufficiently to separate the vaporizable materials, rendering the resultant soap molten when anhydrous. Benjamin Clayton, to Refining, Inc. Canadian Patent No. 402,236.

Centrifugal Separation

Vegetable and animal oils or fats are refined by first neutralizing the oils or fats, and precipitating the soap. Centrifugal separation is effected in a bowl which is so designed that the three fluid components, oil, soap and aqueous solution,—are discharged continuously and separately from the centrifugal bowl. Aktiebolaget Separator. British Patent No. 520.285.

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PRODUCTS AND PROCESSES

Washing Agent

A washing agent contains in aqueous solution (1) an oxygen-yielding salt such as a per salt, (2) an alkaline cleansing agent which may be sodium silicate, borax, soda ash, soap, phosphate, etc., (3) a phosphate with less water than orthophosphate such as pyrophosphate or metaphosphate, and (4) 0.1-1.5 per cent of magnesium silicate as stabilizer. Otto Lind, to Henkel & Cie. G.m.b.H. German Patent No. 703,604.

Varnish Cleaner

A cleaning composition suitable for use on delicate varnished or painted surfaces, leather, wood, etc., is prepared by mixing warm turpentine solutions of carnauba wax and of bleached beeswax, cooling to less than 40° C., adding an aqueous solution of ammonium carbonate, and warming to over 40° C. until the mixture clears and no odor of ammonia remains. Finally a solution of mastic resin or other soft resin suitable for use in picture varnish, in turpentine and alcohol, is stirred in. The resultant paste is thinned to a cream with water and naphtha boiling at about 120° C. C. Roberson & Co., Ltd. and H. M. Ruhemann. British Patent No. 537,152.

Detergent for Linen

A detergent for washing linen contains a starchy material, an alkali weaker than caustic soda such as calcined soda ash,—sodium metasilicate, and boric acid in an amount insufficient to render the whole mixture acid. Aktiebolaget Purnol. British Patent No. 520,140.

Floor Cleaner

A cleansing composition suitable for use on concrete or tile floors consists of a gelatinous paste formed from 30 parts of a 10 per cent solution of sodium silicate, 20 parts of water, and 50 parts by volume of hydrochloric acid of 1.19 specific gravity. Samuel Jacobson, to Max H. Thuranuer. U. S. Patent No. 2,257,467.

Textile Specialties

Organic salts are prepared from sulfonated higher aliphatic alcohols and strong organic bases, such as the pyridine salt of lauryl sulfate, the pyridine salt of stearyl sulfate, and various similar methylpyridine, piperidine, triethylamine, aniline, triethanolamine, and other salts. The products are suitable for use as textile wetting and penetrating agents, and also for the washing of cotton, wool, silk and rayon. Heinrich Bertsch, to American Hyalsol Corp. U. S. Patent No. 2,256,877.

Non-caking Powdered Cleanser

A finely divided dry detergent composition consists of a water-soluble, alkaline-reacting detergent such as soap powder, trisodium phosphate or soda ash, and a solid diluent such as an inorganic "aerogel" like a silica "aerogel," which exerts an anti-caking action, and an emulsifying and dissolving action when the composition is added to water. Francis J. Curtis, to Monsanto Chemical Co., U. S. Patent No. 2,257,545.

Soap Treatment

A continuous process may be applied to the removal of unsaponified residues from saponification products. These residues are removed by steam distillation under pressure. To the steam is added an auxiliary liquid which is soluble in both water and the unsaponified residues, for example alcohols or ketones. The water and the auxiliary liquid are separated from the condensate and reused. Hermann Pardun, to Noblee & Thorl G.m.b.H. German Patent No. 703,634.

Mixed Detergent

A mixed detergent product consists of ammonium phosphate or a phosphate of an alkali metal, plus a free alcohol of an aliphatic or cycloaliphatic nature containing 6-18 carbon atoms, and a water-soluble salt of a fatty alcohol sulfate of 8 or more carbon atoms. Peter Friesenhahn. Canadian Patent No. 402,272.

Soap Stabilizing Agent

Soap compositions such as potash soap mixtures are stabilized against rancidity and discoloration by the incorporation of 0.1-1 per cent of *alpha*-stannic acid. Bernard L. Maxwell, to Lever Bros. Co. U. S. Patent No. 2,258,619.

Antiseptic and Detergent

Non-irritant antiseptic and detergent aqueous solutions suitable for use in hair washes, after-shaving lotions, sterilizing mixtures, mouth washes and the like contain over 5 per cent by volume of a compound such as the active amyl, 2-pentanol or 3-pentanol ethers of glycerine. Geo. L. Doelling. U. S. Patent No. 2,255,916.

Metal Cleaning

A solution for cleaning and sterilizing metals consists of an aqueous solution of a soluble hexametaphosphate, a soluble hypochlorite, and an alkali. The alkali is present in sufficient amount to stabilize the solution and to prevent corrosive action on the metals. Herbert Langwell. Canadian Patent No. 401,938.

Detergent Germicide

A germicidal detergent solution for sterilizing articles immersed in it contains 3-5 per cent of formaldehyde, ethyl alcohol, acetone, and methanol in selected proportions, and about 10 per cent of water. Arthur L. Waugh. Canadian Patent No. 400,785.

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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine and Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,267,204, Insecticide, patented December 23, 1941 by Lucas P. Kyrides, Webster Groves, Mo., assignor to Monsanto Chemical Co., St. Louis. An insecticidal composition comprising an N-alkylated alkylene polyamine selected from the group consisting of N-alkylated ethylene diamines, propylene diamines, trimethylene diamines, diethylene triamines, dipropylene triamines, triethylene tetramines and tripropylene tetramines in which at least one of the alkyl groups contains more than 7 and less than 21 carbon atoms.

No. 2,267,205, Detergent, patented December 23, 1941 by Lucas P. Kyrides, Webster Groves, Mo., assignor to Monsanto Chemical Co., St. Louis. A detergent comprising a water-soluble N-alkylated alkylene polyamine corresponding to the general formula

$$X—NH—R—(NH—R)_n—NH—Y$$

in which R is an alkylene radical selected from the group consisting of ethylene and propylene radicals, $_n$ is 0, 1, or 2, and X is selected from the group consisting of hydrogen and lower alkyl radicals and Y is an alkyl radical having at least 7 and not more than 18 carbon atoms.

No. 2,267,310, Soap Package, patented December 23, 1941 by Walter V. Shearer, West Springfield, and Garrison Householder, Holyoke, Mass., assignors to Plastic Coating Corp. A package comprising a bar of soap sealed in a sheet of wrapping material provided on one side with a moisture-, acid-, and alkali-resistant coating of vinyl resin adapted to counteract the emission of characteristic constituents of the soap for reducing wastage and deterioration thereof.

No. 2,267,385, Manufacture of Insecticides, patented December 23, 1941 by Homer E. Whitmire, Richmond Heights, Mo., assignor of forty-nine one-hundredths to Joseph E. Burger, Webster Groves, Mo. In the art of making insecticides, the process comprising, extracting rotenone-containing roots with a solvent of the character of carbon tetrachloride, ethylene dichloride, trichlorethylene, ethers and the like which are solvents for rotenone, removing solvent from the extract to obtain a gummy residuum, working the residuum with an oil which is not a solvent for rotenone until the oil envelops the particles of rotenone therein, and separating the excess oil.

No. 2,267,587, Insecticide, patented December 23, 1941 by Robert R. Dreisbach, Fred W. Fletcher, and Merlin O. Keller, Midland, Mich., assignors to Dow Chemical Co., Midland, Mich. An insecticidal composition comprising trichloromonofluoro-benzene as a toxic ingredient.

No. 2,267,617, Mothproofing, patented December 23, 1941 by Henry N. Mitchell, Sanford, Maine, assignor to M. H. Hoepli, New York. A composition for simultaneously mothproofing and dry cleaning including a grease-removing organic solvent in which salicylic acid is normally insoluble, and at least about one fifth of its volume of alcohol carrying salicylic acid in the proportion of toward an ounce to a gallon admixed therewith and also carrying boric acid.

No. 2,268,108, Insecticidal Composition, patented December 30, 1941 by Benjamin Collie, Rowland Hill, and Wilfred Archibald Sexton, Blackley, Manchester, England, assignors to Imperial Chemical Industries Limited. An insecticidal composition containing as an essential active ingredient a substituted aminoacetonitrile in which hydrogen, cyano and amino radicals are attached to the same carbon atom of a hydrocarbon group containing from at least four to less than eight carbon atoms, the amino radical being the residue of a secondary aliphatic amine.

No. 2,268,206, Parasiticidal Material, patented December 30, 1941 by Albert K. Epstein and Benjamin R. Harris, Chicago. Parasiticidal materials corresponding to the general formula

$$R—\overset{O}{\overset{\|}{C}}—NY—alk\ (O—\overset{O}{\overset{\|}{C}}—Z—hal)_w$$

wherein R is an organic radical containing at least four carbon atoms, alk is a member selected from the group consisting of alkylene and arylene and substitution products thereof, Z is a member selected from the class consisting of hydrocarbon radicals and substitution products thereof, Y is a member selected from the group consisting of hydrogen, alkyl, cycloalkyl, alkoxyl, aralkyl, aryl, and alkylol, hal is halogen, and $_w$ is a small whole number.

No. 2,268,353, Stabilization of Insecticide Materials, patented December 30, 1941 by William P. ter Horst, Packanack Lake, N. J., assignor to United States Rubber Co., New York. An insecticide preparation comprising an insecticide from the class consisting of derris root, rotenone, timbo root, cube root, and pyrethrum flowers, and as a stabilizer therefor an acidylamino diarylamine having the general formula $R_1—NH—R_2—NH—SO_2—R$, where R and R_1 represent aryl groups and R_2 an arylene group.

No. 2,268,403, Absorbent Scouring and Polishing Body, patented December 30, 1941 by Russell B. Kingman, Orange, N. J. An absorbent scouring and polishing device comprising spongiform coagulated and regenerated cellulosic material having powdered abrasive material contained in and dispersed throughout the coagulated body portions thereof.

No. 2,269,272, Insecticide, patented January 6, 1942 by Oswald Krefft, Hamburg, Germany, assignor to Chemical Marketing Co., New York. An insecticide comprising essentially a combination made of a N-heterocyclic compound having only slight insecticidal effect upon the larvae of the yellow fever mosquito selected from the group consisting of pyrolle derivatives, pyridine derivatives, carbazole, quinoline, acridine, hydrogenation products of the foregoing and substitution products of the foregoing and an O-heterocyclic compound having only slight insecticidal effect upon the larvae of the yellow fever mosquito selected from the group consisting of pyrone, condensation products thereof with aromatic nuclei and substitution products thereof, the combination being characterized by a greatly enhanced insecticidal effect on

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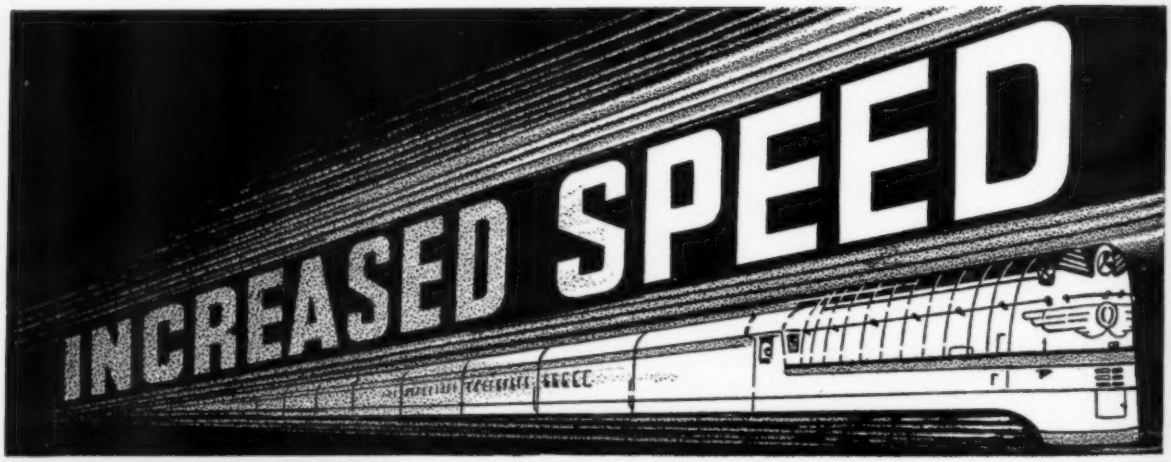

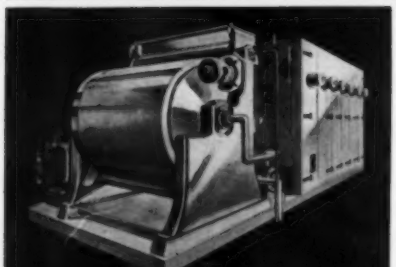

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the larvae of the yellow fever mosquito as compared with that of either of the compounds.

No. 2,269,891, Insecticide and Fungicide, patented January 13, 1942 by Charles Verne Bowen, Bethesda, Md., and Frederick E. Dearborn, Washington, D. C., assignors to Henry A. Wallace as Secretary of Agriculture of the United States of America, and to his successors in office. An insecticide containing as its essential active ingredient copper benzoyl lactoarsenite.

No. 2,269,892, Insecticide and Fungicide, patented January 13, 1942 by Roscoe H. Carter, Washington, D. C., assignor to Henry A. Wallace as Secretary of Agriculture of the United States of America, and to his successors in office. A fungicide and insecticide containing as its essential active ingredient a heavy metal salt of the dithiocarbamic acid of morpholine.

No. 2,269,893, Insecticide, patented January 13, 1942, by Roscoe H. Carter, Washington, D. C., assignor to Henry A. Wallace as Secretary of Agriculture of the United States of America, and to his successors in office. An insecticide containing as its essential active ingredient the morpholine salt of the di-thiocarbamic acid of morpholine.

No. 2,270,856, Continuous Proccess of Saponification, patented January 27, 1942 by Ivor M. Colbeth, East Orange, N. J., assignor to Baker Castor Oil Co., New York. The continuous process of saponification, which comprises introducing a liquid stream containing saponifiable constituents into the lower portion of a confined space, causing the stream to divide into droplets soon after being introduced, introducing a stream of a concentrated solution of caustic alkali into a higher portion of the space and causing it to flow countercurrent to the droplets, and introducing more of the solvent for the alkali into a still higher portion of the space, while maintaining a temperature sufficiently high to cause saponification to take place.

No. 2,271,350, Insecticide, patented January 27, 1942 by Lloyd E. Smith and Herbert L. J. Haller, Washington, D. C.; dedicated to the free use of the Public in the territory of the United States of America. The method of dissolving from above 0.01 per cent to about 0.3 per cent of rotenone in a petroleum spray oil, consisting of heating in an open vessel substantially pure rotenone with a fatty oil which is soluble in the petroleum spray oil at a temperature and for a length of time sufficient to dissolve the rotenone in the fatty oil, thence adding the resulting liquid solution, while hot, to the petroleum spray oil.

Coconut Oil Replacement

(*from Page* 24)

Other savings, although small, can be made in use of coconut oil by introducing small percentages of domestic oils such as soybean oil, corn oil, and peanut oil, into the blend to replace an equivalent quantity of coconut oil. It is said that savings may be made in this way without altering materially the characteristics of the coconut oil soap.

It is possible that quantities of coconut oil which would ordinarily go into edible materials may be released to soap manufacturers if the War Production Board restricts the use of these oils for edible purposes. Of course, the edible industries cannot obtain coconut oil with any more facility than the soap industry, but if they were prevented from using coconut oil, babassu oil and palm-kernel oil, the amounts of these materials released would serve to help the entire soap industry.

Obviously, until true replacements for coconut oil are assured through trade agreements, or through new legislation, existing stocks of coconut oil must be conserved by means of every and any device open to the soap maker.

See Suspension of 2c Penalty

A bill (H. R. 6682) to suspend the 2 cents a pound additional excise tax on the first domestic processing of coconut oil originating outside United States possessions, has just been approved unanimously by the House ways and means committee and reported favorably to the U. S. House of Representatives. The bill was reported as a defense measure having the approval of the committee- the WPB, the board of economic warfare, the OPA, and the Departments of Agriculture, Commerce, State, and Treasury. An early House vote, without opposition, is expected. If the bill becomes law in its present form, the penalty tax would be suspended the day following the enactment and remain in effect until 30 days after a proclamation by the President that adequate supplies of Philippine copra, or coconut oil are readily available for processing in the United States.

Saponification in Kerosene

Saponification of fats at high temperatures in the presence of kerosene, has been investigated by J. J. Jacobs, who was able to eliminate soap discoloration and the necessity for washing with solvents. The laboratory process is as follows: Tallow or other suitable fat is dissolved in kerosene and heated to 180° C. with agitation. Powdered anhydrous caustic is added and the temperature brought to 220° C. Saponification is complete in 15 minutes, or in 8 minutes with the use of crystalline anhydrous caustic. A gel of soap in kerosene-liquid above 180° C.—and glycerine in suspension, is obtained.

This liquid is sprayed into a vacuum flask at 1-10 mm. of mercury pressure through a glass spray nozzle. In the vacuum flask the kerosene and glycerine flash off together, leaving a finely powdered soap. Since kerosene and glycerine are immiscible, they will flash off at a temperature lower than the boiling point of either. After condensation, the kerosene can be decanted from the glycerine and recycled. Since the system is essentially anhydrous, the glycerine recovered will contain 1-6 per cent of water, depending on the fatty acid content of the tallow,—and is only slightly off color. The highest recovery obtained in the laboratory was 86 per cent. Since unrecovered glycerine is present in the soap, proper design of spray nozzle and adjustment of feed rates, will probably increase this yield.

The amount of residual kerosene in the soap, using fresh kerosene, was found to be less than 0.4 per cent. This can be reduced to a trace by recycling the kerosene and consequently eliminating the high boilers. In most cases the odor of kerosene was entirely absent, probably due to the deodorizing effect of caustic and soap on kerosene at high temperatures. The process is applicable to continuous operation. *The Chem. Age* **45,** 222 (1941).

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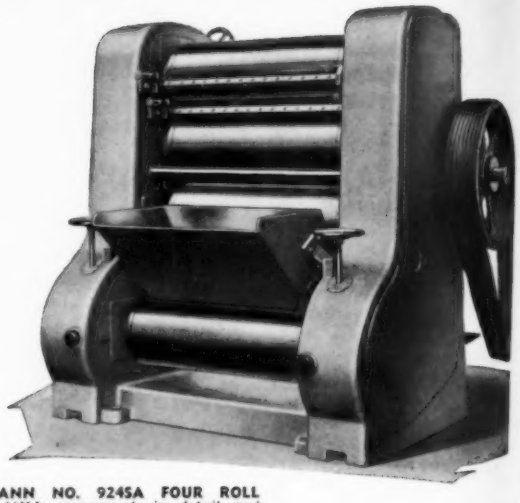

• **LEHMANN NO. 924SA FOUR ROLL SOAP MILL** corresponds in detail and operating features to the No. 912SA Five Roll machine shown above. It is useful for pre-milling or operating in tandem with the five-roll machine.

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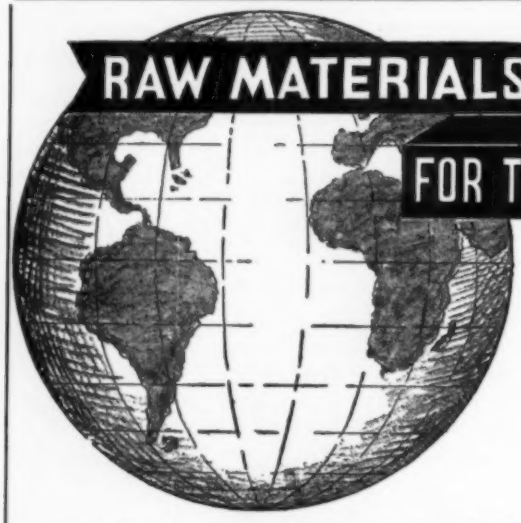

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864—Electric Etchers

A line of electric etchers of special design for marking dies, tools, and other portable equipment for easy, permanent identification, has just been put on the market by Breuer Electric Manufacturing Co., Chicago. Etchers are made for both light and heavy etching. The lighter type of etching is for tools, gears, etc., while the heavy-duty type is for large sized smooth surfaced objects. Etcher includes tools, switch, indicator lamp, cords, etc., all of which are contained in a compact portable case.

865—Hand Cleaning Bulletin

Magnus Chemical Co., Garwood, N. J., has just issued a new 24-page bulletin entitled "The Care and Cleaning of Hands and Arms in the Industrial Plant." Designed for use by safety engineers, plant superintendents, and the like, the bulletin includes discussion of the purposes of a hand cleaner, germicides and medicants, cleaning routines, detergents and scouring agents, and protection of hands and arms on the job.

866—Drum Lift

A new 14-inch lift model "Ernst Magic Carrier" for placing and removing 55-gallon drums on and off skids, scales, and platforms, was recently introduced by Ernst Magic Carrier Sales Co., Buffalo, N. Y. Accidents are said to be completely eliminated by a device which locks the barrel into position on the carrier. The carrier operator does not have to touch the container. In use, the carrier does not have to be tilted in picking up a container, but lifts it vertically from the floor to a height of 14 inches.

867—Care of Wood Finishes

"The Care and Maintenance of Wood Finishes in the Home" is the title of a pamphlet just issued by the Rhode Island State Agricultural Station, describing types of finishes now in use, tests to determine their practical merits, and offering suggestions for their efficient use. Penetration seals, floor waxes, varnishes, etc., are covered by the pamphlet.

Survey Soap Hoarding

Only about 5 per cent of housewives admitted to hoarding of soap in a survey conducted just before and after Pearl Harbor by Egert Research Corp., New York, covering 1870 individuals in 18 different cities. It was brought out by the survey that advance buying of soap, where it had occurred, had taken place among middle-income families. Apparently very little hoarding of soap is being indulged in by either low- or high-income groups. Hoarding of food, such as canned goods, sugar and flour, hosiery, clothing and electrical appliances, seemed to be far more prevalent than hoarding of soap in preparation for price rises, shortages, or losses in quality. Of all the housewives covered in the poll, 42 per cent admitted that they had bought, or expected to buy certain goods to forestall shortages.

Felton Adds Citrus Oils

Felton Chemical Co., Brooklyn, has just begun production, on a large scale, of cold pressed oil of orange and cold pressed oil of grapefruit. In collaboration with Pasco Packing Association, Dade City, Fla., Felton has installed a large modern plant for the production of high quality cold pressed oils. Louis Gampert, vice-president of Felton, who has just returned from Florida, reports that production at the new plant is increasing daily.

Essential Oils and the War

"How the War With Japan Affects Essential Oils" is the title of the feature article in the current issue of the *Givaudanian*, house magazine of Givaudan-Delawanna, Inc., New York. A study of the sources of the essential oils and the aromatic chemicals derived therefrom, as well as a review of prices is included.

National Can Salesman Dies

Charles D. Henriques, for many years a salesman for National Can Corp., New York, died at his home in January following a heart attack. During a period of fifty years, Mr. Henriques was actively engaged in both manufacture and sales.

Java Citronella Oil

(*from Page* 28)

words, that by cutting the distillate, fractions of different constitution are obtained. This presents no unusual feature in the production of essential oils in general but is particularly important in the distillation of citronella oil because it permits modifying the process in such a way as to obtain oils (in reality fractions) of high and low citronellal content. The regular citronellal content of a good Java citronella oil is 35 per cent but oils of 40 per cent, 45 per cent, 60 per cent and even higher are obtained by shortened distillation and sacrificing in regard to yield or, more effectively, by simply fractionating the oil during the process of distilling the grass. The first fraction, which contains the bulk of citronellal, is separated while the second fraction consists mostly of geraniol and a little citronellal. Thus, oils of various citronellal percentage can be obtained but care must be exercised that the second fraction still contains sufficient geraniol to meet the requirements of Contract B which stipulates a minimum of 85 per cent total geraniol.

The so-called total geraniol content, on the basis of which the various contracts are written, is a collective term for all the constituents which can be esterified with acetic acid anhydride. Not only citronellal and geraniol, but other compounds like citronellol, citronellol esters, geraniol esters and sesquiterpene alcohols fall into this group. If an oil contains, for instance, 88 per cent total geraniol, 30 per cent actual geraniol and 35 per cent citronellal, the percentage of other compounds which can be esterified in this oil is 88 per cent minus 65 per cent or 23 per cent. The percentage of the other constituents, for instance terpenes and sesquiterpenes, is then 100 per cent minus 88 per cent or 12 per cent. Aside from actual geraniol and citronellal, this oil, therefore, contains 23 per cent plus 12 per cent or 35 per cent of other constituents. The amount of sesquiterpene alcohols in Java citronella oil is about 5 per cent.

The process of distilling citronella oil from the grass resembles that of fractionating the complete oil in vacuo. The various constituents distill over in the following sequence:

1. Various low-boiling terpenes.
2. Citronellal.
3. A mixture of citronellal, geraniol and various esters.
4. Geraniol.
5. Sesquiterpenes and sesquiterpene alcohols.

From what we have said under CULTIVATION, it is evident that not all citronella grasses lend themselves to fractional steam distillation for the purpose of obtaining fractions of very high citronellal content. Inferior grasses simply do not contain sufficient citronellal. According to Hischmann[11], the factors which make for a normal citronellal content may be summarized as follows:

(1) Good grass grown in high altitudes and with proper care is generally higher in citronellal than that growing in the lowlands.

(2) The soil does not have to be rich in humus; it may consist of light sand but by no means may it be exhausted. If the roots strike lime sub-soil through a thin layer of sand, the oils suddenly show a low citronellal content.

(3) The plant material must from the start be good, healthy and vigorous. It must consist exclusively of *maha pangiri* and not contain any *lenabatu*.

(4) The plantings must be well cared for. Green fertilizing, for instance, has a very favorable influence upon the citronellal content.

(5) Days of sunshine alternating with days of moderate rain are most beneficial. A few months' period of light rainfalls every other day with intervening sunshine favors the development of good oils despite a relatively poor soil. During very dry or very rainy months with only a few days of sunshine, the citronellal content is abnormally low.

(6) The grass must be cut at the proper moment and should not be withered.

(7) The total area of plantings should comprise mostly young fields of new or regenerated (green fertilized) soil. The citronellal content declines considerably in old fields or on exhausted soils, although the total geraniol content may remain normal for quite some time.

(8) The grass should be distilled fresh and distillation should not be pushed too far. It should be carried out carefully and under identical conditions.

At the present time, conditions underlying Java's citronella oil industry hardly permit strict adherence to all these points and, therefore, it is not possible to find throughout the producing regions the same uniform oils as existed during the years previous to the industry's great expansion.

We have seen that a high citronellal content is usually obtained by fractionating the oil in the course of distilling the grass. While in Java, the writer heard of an oil containing about 63 per cent citronellal and 83 per cent total geraniol which was claimed to have been obtained after 1½ hours of distilling without any fractionating. It was produced from a grass cut only 45 days after the previous harvest instead of the normal 65- to 80-day interval. The grass was 1½ years old, raised on an estate at 2400 feet altitude and was dried two days previous to distilling. It should be noted, however, that harvesting every 45 days kills the planting through exhaustion in less than three years.

During the past few years the Association of Citronella Oil Producers in Java made many experimental efforts producing and trying to introduce on the market, aside from the regular type oil of 35 per cent citronellal and 85 per cent total geraniol, a type of 10 to 20 per cent citronellal and 80 to 85 per cent total geraniol and, at the same time, a very high quality containing 60 per cent citronellal. The same grass material which would normally yield two drums of 35 per cent oil will yield approximately one drum of 60 per cent and one drum of 10 per cent oil. On the other hand, it is not possible to split an oil containing 35 per cent citronellal by fractional distillation in the same manner as if distillation and fractionation were carried out directly from the grass. Just how much success the Association will have with these different types of oil and to what extent the Java distillers can be induced to produce them, depends entirely upon the premium the consumers are willing to pay for the oils of high citronellal content.

The introduction of these various types of citronella oil has not remained without criticism. Those of low citronellal percentage have been called "skimmed off" oils, those of very high citronellal percentage are claimed to be much less stable than good, normal oils. According to critics, the increase of citronellal by "skimming off" the second fraction is not really an improvement but an unnatural action which throws the oils off their natural balance.

(*To Be Concluded*)

References

9. *Bericht Schimmel & Co.*, 1936, 15.
10. *Perfumery & Essential Oil Record*, May, 1938, 168.
11. *Bericht Schimmel & Co.*, 1938, 19.

SANITARY PRODUCTS SECTION

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INSIDE NEWS

MARCH PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1942

National's Research Chemists study gases in relation to canning problems

Air or oxygen so essential to life, is undesirable, and often very harmful in a sealed container of a food product. The oxygen of the air remaining in the container when it is sealed may often cause off-flavors, a loss of flavor, or an undesirable color change in the product. Furthermore, since corrosion is accelerated by oxygen, any air left in the container on sealing may cause excessive attack of the product on the tin coating resulting in an unsightly appearance of the interior of the container, or in some cases cause direct attack on the iron base metal, producing perforation of the container and loss of the product. Well informed canners knowing these facts about the effects of air, are careful to exclude as much air as possible from the container before sealing.

Research and development relating to air removal requires an accurate method for the determination of the amount of oxygen or other gases in the container. An apparatus for this purpose is shown in the accompanying photograph. By means of this apparatus it is possible to determine quantitatively the composition of any mixture of gases in a container.

This apparatus is also very useful in the examination of swelled cans. In certain products a type of spoilage occurs which is not due to bacterial decomposition but results from the production of hydrogen by reaction of the product with the can causing "hydrogen swells." The use of gas analysis spots the "hydrogen swells" very quickly. It is also possible to study the factors involved in the formation of "hydrogen swells" by means of experimental packs and determinations of the quantities of hydrogen produced under various conditions.

In many cases of bacteriological spoilage of canned goods, the analysis of the quantities and kinds of gases present in the spoiled containers gives very helpful supplementary information to the results of bacteriological analysis, and aids greatly in the interpretation of the results. RESEARCH IS ORGANIZED THINKING. (87)

The amounts and kinds of gases present in a container may be determined by this apparatus. The gases are withdrawn from the container into the apparatus and their volume measured. Then they are passed through various absorbing solutions in a systematic manner. Each absorbing solution reacts with and removes one of the gases. After each absorption, the volume remaining is measured, and the volume of the gas removed may be calculated. Oxygen, Hydrogen, Nitrogen and Carbon Dioxide present in a container may be determined in this way.

Wartime Effect on Canadian Packaging

The effect of the war in Canada is far-reaching. Like all sales-making businesses, packaging thrives on success. For a variety of reasons retail stores in Canada are on the increase. This means more and better packages. And the rate of increase is fairly high. Wartime demands on Canadian suppliers challenged their ability to keep abreast of package material requirements.

Thanks to a development of production ingenuity plus a mechanical consciousness rather ahead of its time, problems are daily being whipped,—new and unusual conditions are being turned to advantage—and Canadian packaging, far from retrenching, continues to progress.

Well-known benefits of informative labelling are being used to boost sales, and little touches of consumer convenience are being eagerly sought after and exploited.

A trend in buying which affects packaging practice is the necessity for economy of time and effort on the part of the retailer. War service of one kind or another has depleted the merchant's sales force. Self-service emporiums of all kinds are becoming more common. Where clerks are retained, they are degenerating more and more into parcel wrappers and change-makers. This means the package must of necessity start the sale and frequently close it as well. This explains the importance of considering visibility, identification, individuality, suggested uses, and many other sales-making factors, when a package is created or changed. (88)

Canned Squid California Style

At Monterey, California, cooked squid has been successfully canned and marketed for several years. In the peak year of 1940, 935,000 pounds of California squid were packed in 7-oz., 8-oz., and 9-oz. tall and flat tins, as well as in No. 1 tall ones.

Considered a delicacy by some, the consumption of canned squid in the United States is confined largely to the foreign-born. Since 1930, the Philippines have displaced Greece as the principal export market for the California product.

Most of the pack is made in May and June, when the mollusks are most abundant in Monterey Bay. The squid are either packed "natural style" in their own ink, or they are fancy-packed in sesame oil, tomato sauce, olive oil or cottonseed oil. The canned product has a mild shrimp-like flavor. (89)

Mill Runs 270 Years

A grist mill in Denton, Md. that turned out flour for Washington's army during the Revolution is in daily use there in what tradition says is its 270th year of operation.

The water-powered mill is said to be unchanged since colonial days. It is in a frame building, large and roomy, and is known as James Murray's Mill. When Major Nathaniel Potter of Potter's Landing near here was commissioned to buy flour for General Washington's troops he went to Murray, who ground corn meal for the soldiers. (90)

(Advertisement)

BY NATIONAL CAN

MARCH PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1942

Freestone Peach Pack

They're really giving serious thought to making a fine-quality freestone peach pack possible in South Carolina. Last Spring the experimental canning of freestone peach packs was tried out.

It is reported that during the past peach season 40 different varieties were packed in several degrees of syrup. All peaches were picked from one to three days before they began to soften on the trees, and hence were at the best stage of ripeness so far as handling is concerned. The picked fruit was stored at temperatures of 65, 55 and 35 degrees F to finish ripening, and then were taken out and canned. All were packed in halves. (91)

Formaldehyde in Tanks

Reinforced concrete tanks have been found satisfactory for the bulk storage of formaldehyde in Britain. Such tanks, it is said, are fabricated in the same way as tanks for water storage, and afterwards lined with asphalt and acid-resisting bricks to protect the cement. A cheaper, but less permanent lining may be produced by treating the concrete, after thorough drying, with hot paraffin wax, and then melting the wax into the concrete surface by careful use of a blow torch, it is added. Such linings eventually break down, it is pointed out, due to the formation of microscopic cracks in the wax. (92)

New Solvent Oil

High solvency characteristics are claimed for a new heavy aromatic oil declared to be suitable for use as a diluent for creosote oil in wood preserving compositions. Developed by a major American petroleum producer, the material has already passed American Wood Preservation Association tests. Several petroleum companies, especially on the Pacific Coast, are reported to be investigating petroleum wood preservatives suited to replace creosote oil. (93)

Paint For the Navy

It takes 10 tons of paint—approximately 1,250 gallons—to protect a 10,000 ton cruiser and 3,000 to 3,500 gallons to protect a ship of the line. Navy vessels are painted every three to six months. With a two-ocean navy, the demand from this one item alone will be greatly in excess of anything experienced in the life time of modern navy officers. Not only is the demand for paint greater for ships of the fleet but expanding naval air operations call for another large gallonage. Equipment for the rapidly expanding personnel of the navy, land bases and training camps all call for additional volume of paint. The heavy demand for paint for defense purposes will require a larger quantity of synthetic resins and linseed oil. An attempt will be made to increase the acreage sown to flaxseed for the linseed oil. (94)

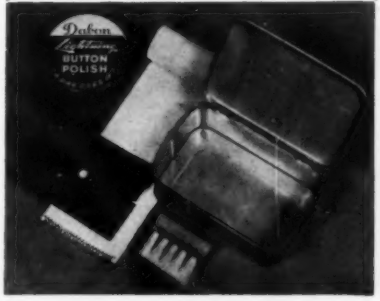
Names for Hybrid Corns

An historical system of naming new Hybrid Sweet Corn has been suggested which will permit canners who know their American history to select varieties for successive maturity dates.

New Hybrids have been developed to ripen successively at three day intervals from early July until frost, and the new naming system planned would denote the ripening period. Names suggested are—Extra Early: Standish, Plymouth, Jamestown; Early: Lexington, Washington, Bunker Hill; Early Mid-season: Madison, Jefferson, Hamilton, Marshall; Mid-season: Lincoln, Lee; Late Mid-season: Great Northern, Golden Spike, Cleveland; Late: Wilson, Pershing, Argonne; Very Late: Roosevelt, Churchill, Hull, Wavell. (95)

Military Button Polishing Kit

Here's another timely new item—packaged by National Can. A button polishing kit for men in the services. Contains polish, brush, cloth and board.



Technical Topics

AMMONIUM CARBONATE, carnauba wax, and beeswax are ingredients of a composition claimed by in new British patent to be suitable for removing grime from painted, varnished, or polished surfaces, or from unpolished materials such as wood and leather. The composition is said to be produced by mixing solutions of carnauba and beeswax in turpentine, adding a solution of ammonium carbonate at a temperature of not over forty degrees, then adding a solution of mastic or other soft varnish resin in turpentine and alcohol, and finally thinning the paste to a cream consistency with water and a petroleum thinner having a boiling point of about 120 degrees. (96)

SULPHUR in a finely divided, active state will reduce chlorate compounds from soil, brickwork, and other porous materials, recent British studies have disclosed. It was found that lime-sulphur was especially effective for introducing the finely-divided sulphur, and that the decomposition products formed in the reduction reaction are apparently harmless to plants. It is declared that chlorate in soil, in amounts sufficient to kill carnations, lettuce, and tomatoes, could be removed by soaking the soil with a 1-in-40 solution of lime-sulphur, and that the soil could then be safely planted as soon as it had dried sufficiently. (97)

THE CONTINENT OF AFRICA normally exports yearly about 20 percent of the oil-bearing raw materials and 25 percent of the vegetable oils that are shipped from the world's producing areas. There is a large potential production of these vegetable oils in areas not at present commercialized. Africa is an expressed goal in the Axis desire for colonial expansion. The United Kingdom and Germany are prominent among European countries almost totally dependent on imports for their vegetable oil needs. Africa has been an important supplier of these needs, and access to the present and potential production of oil-bearing raw materials in that continent is an important consideration to the countries involved in the present conflict. (98)

STUDIES at the New York State Agricultural Experiment Station have proved that fruit juices, such as apple juice and apple raspberry juice, reach the consumer in the best condition when packed in special enamel-lined cans. (99)

For further information on any of these articles write to National Can Corp., 110 E. 42nd Street, New York City. Please mention the number at end of article—also name of the magazine you saw it in.

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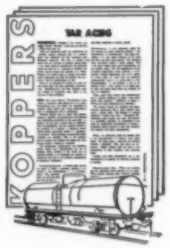

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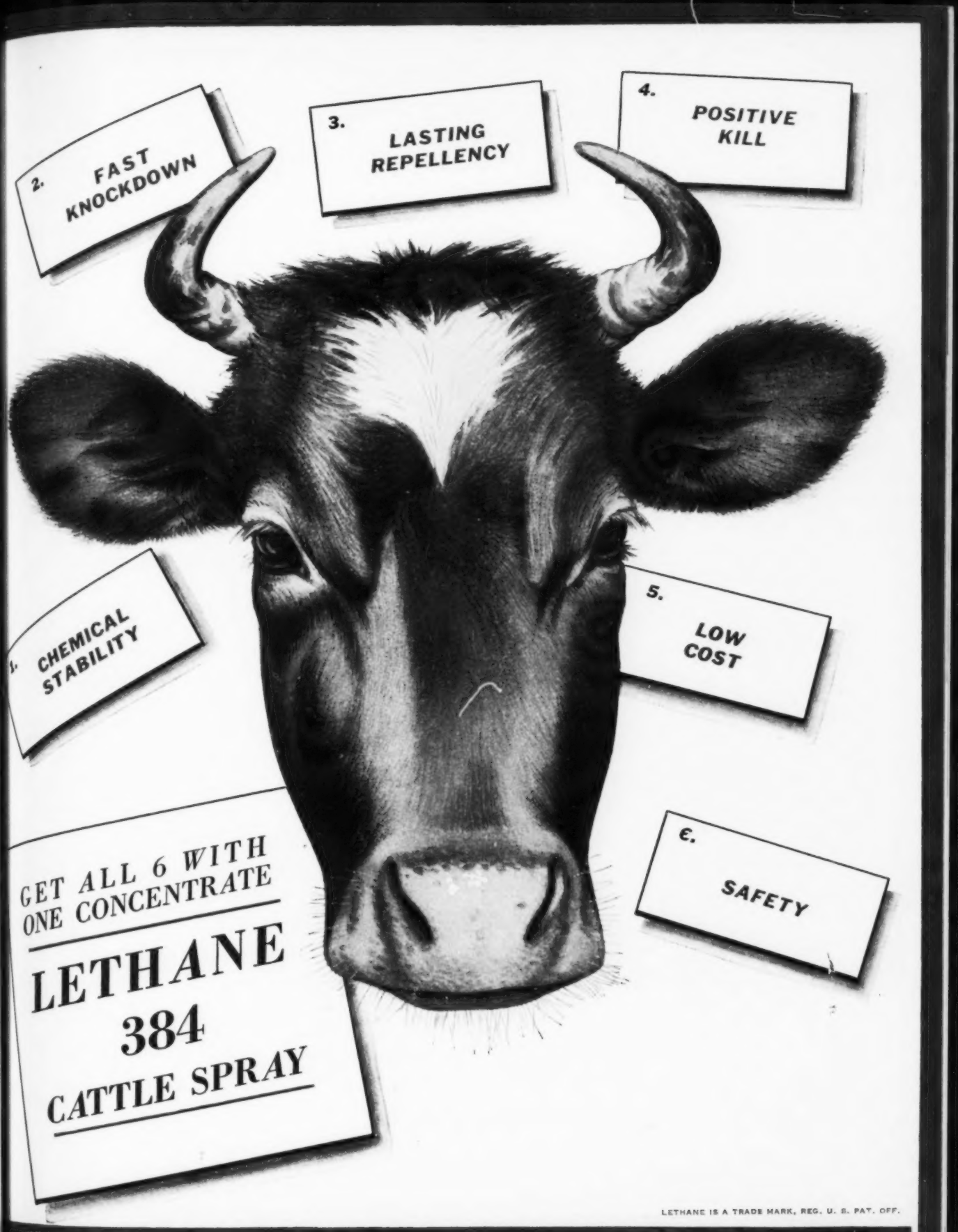

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SANITARY PRODUCTS

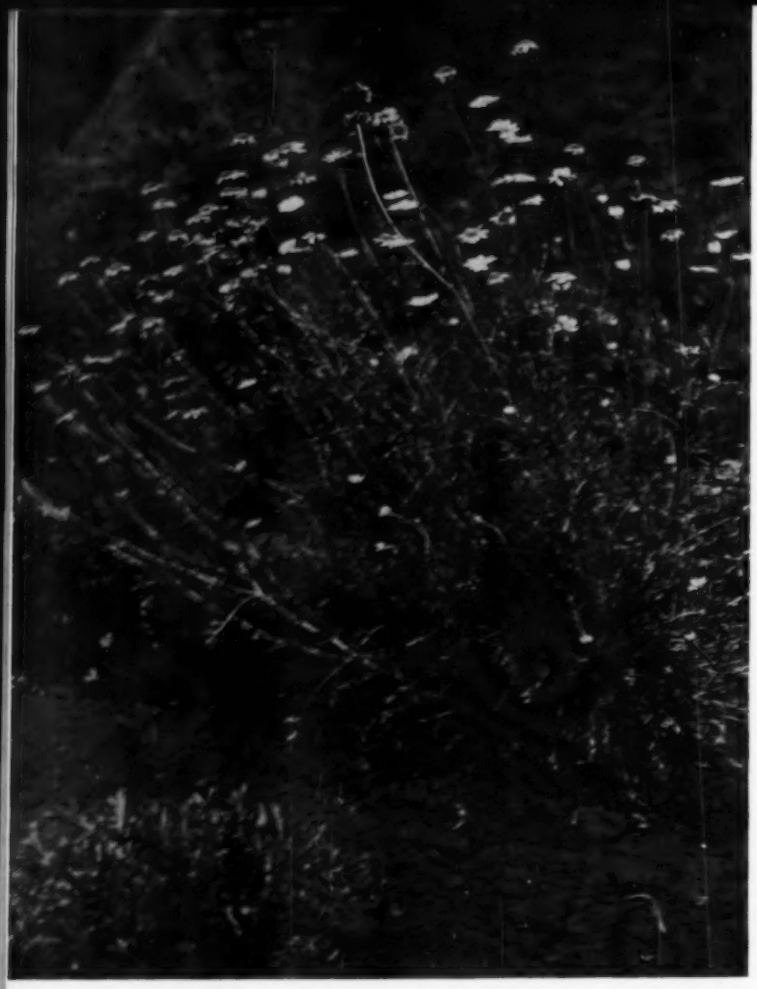
Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

EXCEPT for agricultural purposes, the sale of all rotenone products is now banned. This means that derris, cube, or other rotenone-bearing powder or extract in fly sprays, bedbug liquids, roach powders, flea and louse powders, and other insecticides not intended for agriculture can no longer be used. The matter has been put right up to the suppliers of rotenone materials to enforce this edict as a means of conserving rotenone supplies in order that they may be available wholly for agriculture. Although enforcement will be voluntary for the time being, we interpret this notice to the industry quite definitely as an order to comply,—or else.

REPORTS state that sodium fluoride is more plentiful and that the price has dropped in the face of new supplies made available for the insecticide and pest control industries. If the price does not stay at a figure close to normal levels, the threat of a price ceiling has been heard from Washington. As might be expected, the high prices at which sodium fluoride sold a short time back brought adulteration for the first time which we can remember. Fluoride adulterated with talc and other white inert powders up to 60 per cent has been reported sold to unsuspecting manufacturers and pest control operators. More of this same type of material may still be around the market. It would be sound policy right now to avoid buying fluoride from any but well-known suppliers and to be particularly cautious on "as per sample" offerings.

RESTRICTION by WPB order of cans for household liquid insecticides to a minimum size of one quart has caused considerable confusion. For years, the pint size has been the main standby of the industry. The new order is seen as a serious blow inasmuch as manufacturers believe that a considerable percentage of buyers, especially in large industrial centers, who have always bought in pints, will not spend the money to buy a quart. For the balance of the 1942 season, there will be a supply of pints, to be worked off, but when these are gone, the pint can will be off dealers' shelves for the duration.

Just how long tin lined cans in any size will be available for fly sprays is also a moot question. Naturally, it will all depend on the tin-plate situation. Manufacturers are quite certain that terne plate cans cannot be used for fly sprays. There is the possibility, that soldered black iron cans may be made available, but lightweight sheet steel from which they are made presents almost as serious a supply problem as tin. There is nothing the industry can do, but await developments. Meanwhile, manufacturers who have done a large volume in small sizes with the chain stores are going to be hit harder than others.



KENYA

. . . and the story of it's newly established pyrethrum industry

KENYA, British East African colony, is best known to Americans as the paradise of the big game hunter, or more recently, perhaps, as the base for the successful British drive against the Italians in Abysinnia. To the American insecticide manufacturer it is better known as the present source of our entire supply of pyrethrum, — a source which became providentially available just as Japanese sources were cut off a year or two ago.

Kenya as a pioneer farming community is barely a generation old, —fresh with all the enthusiasm and enterprise of youth. Pyrethrum is the latest and one of the most successful crops to be introduced into this country of tropical latitudes and alpine altitudes. Just as Japan succeeded Dalmatia as the prime source of pyrethrum flowers, so Kenya has succeeded Japan. One of the prime factors, by the way, has been the fact that pyrethrum seems well fitted to Kenya conditions and flowers from Kenya growers have regularly tested at a 50 per cent higher pyrethrin content than previous Japanese shipments.

It was less than ten years ago that the first Kenya pioneer tried out this new crop. The high pyrethrin content of Kenya flowers was discovered at once and immediately inspired the ambitious idea of making Kenya the main source of supply of pyrethrum for the whole world. Another natural advantage was found in the perpetual Kenya summer which made possible practically a year-long harvest. In Japan pyrethrum is harvested only once a year, and flowers deteriorated badly before use in many cases. Kenya flowers can be delivered fresh throughout the year,—an important natural advantage which further contributes to maintaining a higher pyrethrins content.

The Kenya settlers set about getting pyrethrum growing started on the right lines from the first. They got a law passed to enforce the registration of every pyrethrum grower and to prohibit growers from exporting pyrethrum except through one agency, appointed by the government. This agency was the Kenya Farmers' Association, the headquarters at the up-country town of Nakuru, conveniently situated for easy access to the chief pyrethrum growing districts. To this center all pyrethrum must be sent, there to be graded, and only from there to be exported. As it was started, so it has continued. No pyrethrum leaves Kenya except through this one channel, after being carefully graded and analyzed.

To ensure the best possible product for export, a whole series of precautions must be adopted,—starting before the pickers enter the field. Days must be selected for picking when the maximum number of flowers are at the optimum stage for harvesting and pickers must be unceasingly

taught and checked on selection of the right flowers. In this work of picking mechanization has no place. Every flower is hand-picked, and must be picked at just the right stage of development. Picking is not a matter of indiscriminate stripping. The value of the flower lies in its pyrethrin content. The percentage content of the flower-head increases as the bud develops into the open flower, until it reaches a maximum when the flower is about three-quarters fully blown. That is the time to pick it. To pick the flowers too early means a crop lighter in weight and less in pyrethrin content. To pick too late means a heavier crop, but a lower pyrethrin percentage, with the risk of discolored, overblown flowers.

The pickers bring their baskets to the drying house, where the flowers are weighed. If inspection of the basket shows careful picking, the picker receives the top rate for the flowers picked. The drying house is an important part of pyrethrum production. On a lower floor there is a furnace, fed with wood fuel, and a system of flues and air inlets, so arranged that a rush of hot air continually passes upwards through the upper floor. On this upper floor are stacked the tiers of trays filled with the freshly picked flowers. Much depends on the design and construction of the building, and still more on the care taken during the actual process of drying. Too high a temperature, too little ventilation, too deep a layer of flowers in the trays, all may spoil the chance of a Grade 1 result.

After a period of 24 hours or so in the drier, the flowers should be sufficiently dried. The flower head, which when picked may have measured two inches across, has now shrunk to a golden center with the outer petals shrivelled up, but still adhering and still white. That is how the dried flower should look, if the drying has been properly done.

By E. W. Bennitt

KENYA FARMERS ASSOCIATION

The dried flowers are then packed in bags, about 50 lbs. to the bag. This is the equivalent of about 200 lbs. of fresh flowers. The bags must be as nearly as possible air-tight, for dry pyrethrum is very quick to absorb moisture. Eventually the bags are loaded on a motor lorry or ox-wagon, and sent to the nearest railway station, to be railed to Nakuru.

On arrival at this central depot of Kenya's pyrethrum industry, every bag is opened, the contents carefully examined and the consignment of flowers graded accordingly. To be passed as Grade 1, flowers must be properly dried, of a good color, with no sign of fermentation or scorching, with a minimum of underdeveloped or overblown flowers, and no stalks or buds. The grader's lot is not a happy one, and many is the wrangle with disgruntled farmers who find their flowers refused for Grade 1, or worse still rejected altogether. But the rules are inexorable, and nothing but the best can pass.

After the flowers have been passed by the grader, they are sent to the hydraulic presses, to be pressed into bales of 448 lbs. each. While the flowers are passing into the presses, samples are taken continuously, and the samples are bulked until the equivalent of a complete bale has been collected. This sample bale is then tested for pyrethrin content at the Government Laboratories near Nairobi.

The last stage is to dispatch the bales of pyrethrum on their 400-mile rail journey to the port of Mombasa, from there to be shipped to their destination overseas.

The pyrethrum industry is now so well established in Kenya, that last year over 6,000 tons of dried flowers were produced. Such a result from the experimental plantings of only a few years ago is very good going. Of course there have been ups and downs, as in any other form of agricultural production, and it has not always been the farmer's fault if the yield has been disappointing, or the quality of the flowers not up to standard. The weather in Kenya is as subject to unseasonable variations as in any other part of the world. Recently a prolonged dry spell not only caused a serious falling off in the flowering, but so weakened the plants that they were many months

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care and maintenance of ELEVATOR FLOORS

By Richards Jarden
FRANKLIN RESEARCH CO.

THE abuse given an elevator floor makes it necessary to plan an entirely different program for the maintenance of that surface than for any other throughout the average building. This is due not only to the fact that traffic is so concentrated, but also because of its "scuffling" or abrasive nature. Even the front entrance-way receives less actual abuse, for while there may be a greater number of persons passing over the same square foot area of the front entrance, we never have that constant "scuffling" of the feet and the grinding type of abuse that is daily routine in the elevator.

The elevator operator, by the way, is the most abusive of all employees on floor surfaces. Watch him sometimes and see how, as he leans forward to open the door, he slides his foot along the floor rather than taking an actual step forward. Although his shoe may be quite free of grit, he naturally uses that abrasive matter that his passengers have tracked in to wear a noticeable traffic lane right across the front of the elevator floor.

It matters little if the surface is rubber, linoleum, asphalt, tile or some special composition, for the abuse in this small elevator area is just too much for any type of present day resilient floor covering to withstand without the help of a well planned maintenance program and well selected maintenance materials. A program is of first importance, and materials secondary, for certainly there are no materials that will in themselves lick this difficult elevator floor problem.

The first step in the maintenance program is to plan definitely to keep the cab as free of "tracked-in" grit as possible. This means taking the elevator to the basement immediately after the early morning rush and immediately after the noon day rush, and sweeping out all the accumulation of grit.

We are going to plan to maintain this elevator floor with the same brand of non-skid water emulsion floor wax that we would normally use on the floors in our rooms and corridors, but we are going to continue with our understanding of the concentration of traffic that we are dealing with and thus realize that wax alone will not solve the maintenance problem. We will need a most receptive foundation for that wax and in preparing it, we will have to break one of the general rules having to do with the maintenance of either rubber or linoleum, for we are going to seal the surface before applying the wax.

Under ordinary conditions, neither rubber nor linoleum should be sealed, but, we are dealing here with no ordinary condition and thus we are faced with a choice between two evils—

1. The use of a seal as an undercoater or foundation for the wax, or
2. A prohibitive cost of using the wax without a seal foundation.

Our requirement material is, therefore, divided into two groups—

A. A SEAL or UNDERCOATER—this will be one of the varnish type floor seals in the case of linoleum, or it will be a clear lacquer if we are dealing with rubber.

B. THE MAINTENANCE MATERIALS to include—first, the non-skid water emulsion wax and, second, a good cleaner.

With these materials on hand, let's get to work:

First, give the floor a thorough cleaning and be sure to rinse with clear water to remove any dirty cleaner residue. Allow the surface to dry. Now, I mean, really dry, for we are about to apply our seal and if it is going to "take hold" it must have a thoroughly dry surface.

Now, apply the undercoater. Keep in mind that if the surface is rubber, you must use lacquer and not a varnish-type seal. If you are dealing with linoleum, by all means use one of the newly developed synthetic varnish type wood seals, such, for example, as those normally recommended as gym seals. Apply a two-coat application of the undercoater and lay a real foundation for your wax. Remember that this undercoater will take away from the resiliency of the rubber or the linoleum and that this will increase the "speed" of the wax as compared with applying it direct. It therefore becomes necessary to select a non-skid brand of wax.

The best of materials and a well planned maintenance program are essential in girding an elevator floor to withstand its daily abuse.

(At this point, may I point out that practically every wax salesman in the country claims that his wax is non-skid. Please do not be sufficiently gullible to purchase on the mere claim for non-skid qualities by the salesman or the manufacturer. Insist that this claim be substantiated by the findings of some well recognized and independent authority. If a wax is truly non-skid then it follows that the more of it you apply to your floor, the slower that floor will be.)

Apply three original coats of the non-skid wax. In other words, enough wax to give a trip to the foot. It is not going to be necessary to apply three coats at each period of application. Start off with a good heavy film of wax and then for maintenance and "touch up" purposes, apply but one coat at a time.

Your elevator is now in perfect condition, fortified against just such abuse as can be expected, and you are into a program that is going to get the grit and abrasive matter out of it quickly by that 9:30 A.M. and the 2 P.M. sweeping we spoke of.

Did I mention the possibility of a rubber mat at the front entrance way to catch as much grit as possible before it has a chance to track into the building? Consider this. Also give thought to a rubber runner to be laid on those raining and snowing days when a great deal of water is going to track into the building.

You are going to find your elevator floor in mighty fine condition by 5:30 P.M. of the first day of this program. Your reaction will be that your troubles are all over. Don't kid yourself. You have merely uncovered the procedure. It is now up to you or the management to see that this procedure is carried out daily. You must now plan to "stay ahead" of the abuse, and not let the abuse "get ahead" of you. The floor should be damp mopped with clear water and another coat of wax applied every night, or every other night, as conditions require.

Keep in mind that because of the lacquer-seal-undercoater, you will not be able to see readily the wear that takes place in the wax film. Do not let that wax film wear through. It is there to protect the undercoater from wear and thus to protect the floors. If the wear is allowed to go through the wax and to affect the undercoater, then you are faced with the removal of the lacquer or seal

and the application of a new undercoater foundation. So again, I repeat, "keep ahead of the wear" and touch up the wax at sufficiently close intervals so that it never has a chance to wear through.

After six, eight or twelve months' time, you will find the undercoater turning yellow. This will be true with either the lacquer or the varnish seal. You may also notice that although you have tried to keep the undercoater well protected with wax, a spot here and there will show some wear. At this point, prepare to remove the old undercoater and start out with a fresh foundation. That is, strip the surface and start in all over again. Merely, clean off the protecting film of wax and then use ethyl acetate for removing either the lacquer or the varnish seal.

Don't let the ease and low cost of lacquer or varnish removal from an elevator floor lead you into the use of these materials on larger areas of linoleum or rubber, however, for this is merely a low cost proposition in material and labor when applied to a small area such as an elevator floor. Ethyl acetate is quite expensive and the cost would be prohibitive on a large area. You will remember that we started this recommended program after taking into consideration that because of the unusual problem of an elevator floor, we were justified in selecting the lesser of two evils. Let me repeat, we are definitely against lacquer, or varnish seal, in the average area covered with rubber or linoleum. The above program applies only to elevator floors.

You might stretch a point here and say that you could find one or two other areas where the abuse would warrant consideration to this same procedure. Let us say, for example, the elevator landings, or that small area at the top and bottom of a heavily used flight of stairs. The small three-foot by three-foot area in front of the cashier's desk in a restaurant. The walkway in front of the counter in a cafeteria. The small area at the entrance to a washroom where water is apt to be tracked onto the floor, and that area in front of a water cooler. It is again a question of the selection of the lesser of two evils to adapt this elevator floor program in such other spots as those where again you are faced with protection against unusual abuse.

Kenya Pyrethrum Industry

(*from Page* 89)

in recovering. On the other hand, too much rain can do much harm on land that is not well drained, because the pyrethrum plants will not stand being water logged. Then again, a sudden hailstorm may ruin a whole field of flowers in ten minutes, or a sharp frost may cause even worse damage in a night. However, pyrethrum growing is now spread over so wide an area of the colony that, when one district is hit by adverse climatic conditions, other districts may escape, and so the general production carries on.

But, over and above the ordinary accidents incidental to all farming, Kenya pyrethrum growers now have to face the exceptional conditions of war; and in this war, as in the last war, Kenya is taking her full share. It was only when Italy entered the war that Kenya actually became a battleground; but for nearly a year previously, ever since war began in Germany, most of the men of the colony had been mustered along the border, in readiness for the coming clash. Remember that the Northern Frontier of Kenya is the Southern border of Abyssinia, and Abyssinia was crammed full with Italian troops, to the number of 200,000 or so. This was a formidable threat to the little British Colony, with its total white population of only about 20,000 men, women and children.

So once again, as it was in the days of old, the men went out to fight and the women stayed to tend the farms. Today even with the whole of the Italian army of Abyssinia liquidated, there is still plenty doing in the way of soldiering for the men of Kenya, and the farms are still mostly in the care of the womenfolk. Such is the story of the past and present of pyrethrum production in Kenya. The future looks good.

Germicidal Aerosols

The humidity of an atmosphere being disinfected by means of germicidal aerosols influences the success of the operation. The number of air-borne bacteria able to survive for a given time may often be decreased many fold on raising the humidity from 40 per cent to 60 per cent or higher. The effect of increasing humidity was noted in the survival rate of both atomized broth suspensions of stock cultures and the flora of atomized normal saliva, but the magnitude of the effect was not the same for all test organisms.

This effect was noted when using as aerosols heat-volatilized or mechanically nebulized solutions of pure phenolic substances, hypochlorites, and balsams, but its magnitude differed with different germicides and with the method of producing the mist. Further work is necessary before precise recommendations can be given as to percentage relative humidity, type of germicide most effective, and method of generating aerosol. A. H. Baker and C. C. Twort, *J. Hug.* **41,** 117-30 (1941); through *Chem. Abs.*

Hypohalites as Antiseptics

Quaternary ammonium hypohalites form stable compounds very soluble in water and useful as antiseptic, sterilizing or germicidal agents, such as trimethyl benzyl ammonium hypochlorite or tetramethyl ammonium hypochlorite. The compounds are stable in aqueous solution over a period of many months. Irving E. Muskat, to Pittsburgh Plate Glass Co. U. S. Patent No. 2,256,958.

Black Shoe Stain

Stains for shoes are prepared by dissolving nigrosine base in monochlorobenzene, the amount by weight of the base being not less than about half the amount of monochlorobenzene. These stains are an intense black. The resulting solution is compatible with resin solutions and may be diluted with alcohol or with certain other solvents. B. B. Chemical Co. Ltd. British Patent No. 529,241.

The seal of a packaging expert

PACKAGING expert? Why, the owner of that seal lived in the Middle Ages! What could he know about modern packaging?

Plenty. He knew that a package should protect its contents. That's why he sealed his letter with wax. Then the message was protected against prying fingers and eyes. A broken seal was evidence of tampering.

He knew also that his personal seal stamped in the wax identified the package—quickly told the receiver who the package was from. The seal, in a manner of speaking, was his personal trade-mark.

Why not take these packaging tips from the Middle Ages?

If you're looking for a package that will give your product complete protection, Continental can help you. Continental containers will not break, chip or crack. They're sturdy but light, easy to fill and pack, less costly to ship.

As for trade-marks, they were in use when a fellow named Gudea, who was the first to use a signet ring seal, was a babe in arms. And he died 5,000 years ago, at least. In fact, trade-marks have been in existence for as long as men have been proud of their products.

Showing you how to feature *your* trade-mark where it means the most, on your product's package, is a feature of Continental's complete packaging service—a service that takes in *every* angle of packaging.

If you have any packaging problem—whatever your product may be—call for Continental. Our sales representatives are always at your service.

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D & O Pyrethrum No. 40 not only fits better in special formulas, particularly horticultural sprays, but its use even where No. 20 would be perfectly convenient permits economies in containers and transportation which are becoming of increasing importance.

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D&O
ESTABLISHED IN 1798

Lower Concentrations of ROTENONE

By H. F. Wilson and R. L. Janes

UNIVERSITY OF WISCONSIN

IT is estimated that six to seven million pounds of rotenone are now available for use in the United States. An estimated need of eight million pounds is suggested for 1942. It seems obvious that only limited additional supplies will be available from South America, and no estimate can be made on importations from the Far East. Our Government has asked for greater crop production in 1942. What about 1943 and beyond? Why not organize the use of our rotenone to meet the needs of 1943 as well as 1942 and also have in mind that we may not be able to import up to our needs in 1944?

When rotenone first came into general use in the United States as an insecticide, the general practice was to use 20 pounds of 5 per cent ground cubé or derris with 80 pounds of diluent which made a 1 per cent rotenone dust. Effective control was so variable that even higher amounts were sometimes used with more conflicting results. In more recent years there has been a tendency to lower the rotenone content to .75 per cent for pea aphid control and dusts containing .5 per cent have been found to give satisfactory control. It is known that some insects can be controlled with as little as .1 of 1 per cent rotenone.

Many reasons have been given for the variability of results obtained with rotenone but since no basic investigation of the behavior of rotenone with variable diluents and conditioning agents had been made, the causes could only be estimated. We believe that experimental evidence is now available to show that the fault has not been with rotenone but that the failure to secure consistent control with rotenone was mainly due to incompatible diluents used prior to 1940 and a poor understanding of application methods.

A large number of clay and talc diluents have been studied at the University of Wisconsin and sufficient data has now been obtained to show that clay diluents are not compatible with rotenone. It is also known that many talcs are not compatible for reasons not yet clearly understood. There are only 5 or 6 talc deposits in the United States that contain talc highly compatible with rotenone. When a compatible diluent is used as a carrier for rotenone and oil is added, high toxicity has been found against the pea aphid. When an incompatible talc was used, the toxic value was retarded either by the physical or chemical composition of the diluent. Naturally, the results were inconsistent and usually poor. There were 34 talc deposits being worked in United States in 1939 according to the United States Minerals Yearbook for 1940. There are also four deposits of pyrophyllite and one of mica. We have made significant comparisons of materials from 22 of these deposits and have found that one pyrophyllite and five talcs were superior to all the other samples when used in rotenone-bearing dusts.

Space does not permit a discussion of the details at this time. The superiority of these few diluents lies in that lower per cents of rotenone may be used with them and that 1 or even .75 per cent rotenone used with these diluents are not significantly better than .5 or even .25 per cent rotenone dusts when used for pea aphid control. The data has not been published but it has been definitely established that a .1 per cent rotenone dust can be used effectively against the asparagus beetle.

In time it will be found that many insects can be effectively controlled with as little as .1 per cent rotenone when the proper diluents are used and the application methods are satisfactory. We believe that by the proper use of the present supply of ground cubé and derris that the toxic values of this supply can be increased from two to four times. We have some data which indicates that

With a shortage of rotenone facing manufacturers and users of agricultural insecticides, there is particular immediate point to the suggestion that the rotenone content of agricultural dusts may safely be reduced. With compatible diluents, and optimum application methods, significant reductions in rotenone content can safely be made with no loss in kill, early tests seem to indicate

better control can be secured by using larger amounts of a low rotenone content dust than can be secured by the use of smaller amounts of higher rotenone content dusts.

With some diluents deterioration seems to begin almost immediately. It also appears that vegetable oils may not be as satisfactory as mineral oils if the dust is held in storage for too long a time. Temperature, long considered one of the reasons why rotenone dusts did not work, is now known to have less importance than was formerly considered. Excellent field control has been secured when the temperatures were as low as 60° F. and dropped lower shortly after the dusting operation. Humidity seemed to be much more important than temperature.

Much variation can be shown between different pieces of dusting equipment. One high velocity machine used in our work in 1941 gave much better and more consistent results than two low velocity machines also used. However, it should be pointed out that the two low velocity machines were fitted with tubular booms, while the high velocity machine was the multiple tube type. The dispersion of the dust on the plants is exceedingly important, and while it is early to make definite claims, it seems certain that electrostatic charges as produced in the application of the dust play an important part in the dispersion of dusts on plants and insects.

Considerable attention must be given to having the dust boom well above the plants. Greenhouse data shows that much better dispersion of dust is obtained if nozzles are held 12 to 15 inches from a group of plants at the time of dusting than if they are held within 8 to 10 inches of the plants. With the latter procedure, the dust stream does not break before reaching the plants and the dispersion is poor. As a result, many aphids are not touched with the dust. In the field aphids are more easily controlled on short vines than they are on taller vines with more compact growth. This indicates lack of dispersion rather than ineffectiveness of rotenone and more of a weaker dust will give better control than less of a stronger dust.

Methods for controlling the pea aphid are moving forward slowly but progress is being made and when better application methods are developed, consistent control can be expected.

Greenhouse experiments carried on during the winter months of 1939 to 1942 have given consistent results. In 53 separate tests carried on during that period, a control dust containing .1 of 1 per cent rotenone has been used. The average control for these 53 tests is 92.05 per cent. Field trials have not yet demonstrated that it is safe to use dusts containing as little of .1 per cent rotenone but conclusive evidence is available to show that .25 to .5 per cent will give as effective control as higher amounts if properly applied.

Two of a large series of greenhouse tests are used to demonstrate the possibilities of using low concentrations of rotenone. Table I shows the data from a test in which a series of freshly mixed dusts containing from .1 to .75 per cent rotenone were used. "Pyrax" was used as the diluent and each dust was conditioned with 2 per cent SAE10 lubricating oil. The dusts were applied to potted plants 10 to 12 inches high. Each pot contained 8 to 12 plants. Three grams of dust divided into six one-half gram doses were applied to each pot. The applicator was held approximately 15 inches from the plants for four downward applications and at the edge of the pot for two upward applications. The records were taken at 24 and 48-hour periods, and all dead aphids were removed and counted at the end of each period.

The results of this test show that with careful application, high control of the pea aphid can be obtained with rotenone dusts and that no significant differences developed between dusts containing different per cents of rotenone.

A SECOND series was run to compare the laboratory testing method and also to compare six different samples of ground cubé said to contain 5 per cent rotenone. Chemical analyses of these samples showed that the first five contained slightly less than 5 per cent rotenone while the sixth sample contained only 3.85 per cent rotenone. It will be noted that this sample gave relatively poor results attributable partly to obviously poor physical condition.

These tests were all run according to the regular laboratory practice. Three uniform plants growing in No. 2 cans and infested with 20 aphids each were used for each test. Each plant was dusted under a bell jar with one-half gram of dust. Each sample was mixed with "Pyrax" and contained ground cubé to make a .1 of 1 per cent rotenone dust. They were all conditioned with 2 per cent SAE10 lubricating oil. The electrostatic charge of each dust was taken at the time of application. Tempera-

TABLE I

% Rot.	No. Plants	Dead & Morbid— 24 hrs. Adult	Inter.	Young	48 hrs. Adult	Inter.	Young	Alive— 48 hrs. Adult	Inter.	Young	Total Aphids	Dead Aphids	% Control
.1	10	122	180	509	6	7	42	5	3	14	888	866	97.5
.1	8	138	181	504	7	8	65	3	0	20	926	903	97.5
.25	12	165	360	1131	13	17	136	5	2	21	1850	1822	97.5
.25	10	76	162	318	6	7	45	4	6	19	633	604	95.42
.5	10	84	121	409	7	10	25	1	0	0	657	656	99.8
.5	11	77	160	419	8	8	51	1	1	6	734	726	98.9
.75	10	71	183	699	9	9	56	7	4	39	1077	1027	95.36
.75	9	144	320	782	10	5	18	4	2	46	1341	1289	96.1
Check	10	2	0	0	0	0	5	79	275	769	1130	7	.006
Check	9	0	3	1	0	0	0	155	500	758	1407	4	.003

TABLE II

Lot. No.	Electrostatic Charge in Volts	Total Apids	24 hrs. Down	24 hrs. Morbid	24 hrs. Dead	48 hrs. Down	48 hrs. Morbid	48 hrs. Dead	72 hrs. Down	72 hrs. Morbid	72 hrs. Dead	Adults on Plant	% Kill	Average for 3 plants	Remaining Young
1	3950	20	14	0	0	0	14	2	0	4	14	0	100		6
	3675	20	19	0	0	0	19	1	0	0	19	0	100		0
	4100	20	14	0	0	0	20	1	0	0	18	1	95	98.33	0
2	3825	20	17	0	0	0	17	2	0	3	13	2	90		6
	3675	20	18	0	0	0	20	0	0	5	15	0	100		0
	3450	20	14	0	0	0	18	0	0	0	19	1	95	95.0	0
3	4100	20	14	0	0	0	15	2	0	7	9	2	90		20
	3675	20	18	0	0	0	20	0	0	6	14	0	100		0
	3675	20	0	0	0	0	15	2	0	4	13	1	95	95.0	20
4	4100	20	15	0	0	1	19	0	0	0	19	1	95		0
	4250	20	20	0	0	0	17	0	0	3	17	0	100		0
	4200	20	19	0	0	1	17	1	0	1	18	0	100	98.33	0
5	4100	20	8	0	0	1	4	0	0	4	13	3	85		20
	4100	20	12	0	0	1	12	2	0	8	7	2	90		50
	4325	20	11	0	0	0	15	0	0	8	11	1	95	90.0	12
													Average	95.33	
6	3000	20	8	0	0	0	9	0	2	0	12	6	60		5
	3350	20	9	0	0	0	14	0	1	5	10	4	75		30
	3675	20	6	0	0	0	10	2	2	3	9	4	70	68.33	20
Check		20	0	0	0	0	—	0	0	0	0	20	0		100+
		20	0	0	0	0	—	0	5	1	0	14	0		100+
		20	0	0	0	2	—	0	6	0	0	14	0	1.67	100+

ture during period of test 65° to 69° F.

Discussion

WE believe this series of tests shows some of the differences that appear in the field and indicates that dusting operations can never be expected to give absolute control. The adult aphids were just passing from the fourth to the fifth stage when transferred to the plants 24 hours before dusting. In every case some young were produced. Most aphids will begin putting forth extra young as soon as the rotenone takes effect and may produce up to 20 young in the next 24 hours. If the adults have settled in a more or less protected spot between sepals they may not be touched with dust particles and the young being also protected are able to grow to maturity. Occasionally an aphid with dust particles on its back will not be affected, probably because there was no rotenone attached to the diluent particle. Therefore the effectiveness of a dust has to be compared on the basis of both the number of adults and young that remain on a plant. Just why death is so long delayed when rotenone is used is not possible to say, but in 6 to 24 hours from 10 to 20 out of a possible 20 aphids may be down and not capable of crawling, though an antennae or several legs may move about more or less for several days. If any young come in contact with dust particles after the dust is applied, they usually die in a short time.

Twenty adult aphids on a check plant can produce more than 100 young during the period of a test, so that it seems reasonable to compare 25 young with 1 adult. If a plant has 25 or less young remaining, we believe that a test is satisfactory considering the possible escape from the treatment of one or two adult aphids or a group of young deposited on dust-free foliage. If one or more adult aphids remain on a plant at the end of a test and there are few or no young, the results may be considered completely satisfactory since it is evident that the adults are not capable of further production and the young may not live. But if one or more adults and 25 or more young remain the results are not considered satisfactory.

No attempt has yet been made to count the dead young because some of them get lost in the sand under the plants and are hard to find. To simplify the checking and figuring, a number of 100+ is used for the check of the count shows more than a hundred young on a plant. If any aphids not on the plant are able to crawl they are counted as down. Aphids unable to crawl but showing some movement are counted as morbid. In the final count all morbid aphids in these tests were considered as dead. All dead aphids were removed at each check period. The control is based on adults only. The number of young are not considered because we did not fully appreciate the significance of their presence at the time and observations were not continued to learn how many dropped off later.

The data shows that samples 1 to 4 were significantly good. Sample 5 appeared significantly poorer than the others and sample 6 shows what may be expected if the ground root is below specifications. This was particularly true because enough additional ground root was used to bring the mixed sample up to the 5 per cent rotenone basis. We believe that the data also shows that the method of procedure was reasonably satisfactory.

The electrostatic charges produced were not as regular as we would have liked but no way has yet been devised to prevent such fluctuations. The importance of these charges has not yet been completely studied. However, they appear to have some importance on dust dispersion. If the charge is low, the dispersion is poor and the dust particles are not attracted to the aphids as appears when the charges are high. When a high charge is produced, the dust particles stand out on the legs and antennae like iron filings on a

(*Turn to Page* 117)

In These Times . . .

IN TIMES such as these when a manufacturer hardly knows today from whence will come his raw materials for tomorrow, he must of necessity gear his shipments of finished merchandise to his ability to obtain the necessary raw materials. In the face of these conditions, the Hollingshead organization has been and is straining every facility to the utmost to keep a steady supply of soaps, disinfectants, insecticides, polishes and other sanitation products moving to its regular customers, and at the same time, furnish everything for which it is called upon in war supplies to government departments. And regular Hollingshead customers, we are certain, will bear witness to the success of these efforts to keep them supplied with necessary sanitation products.

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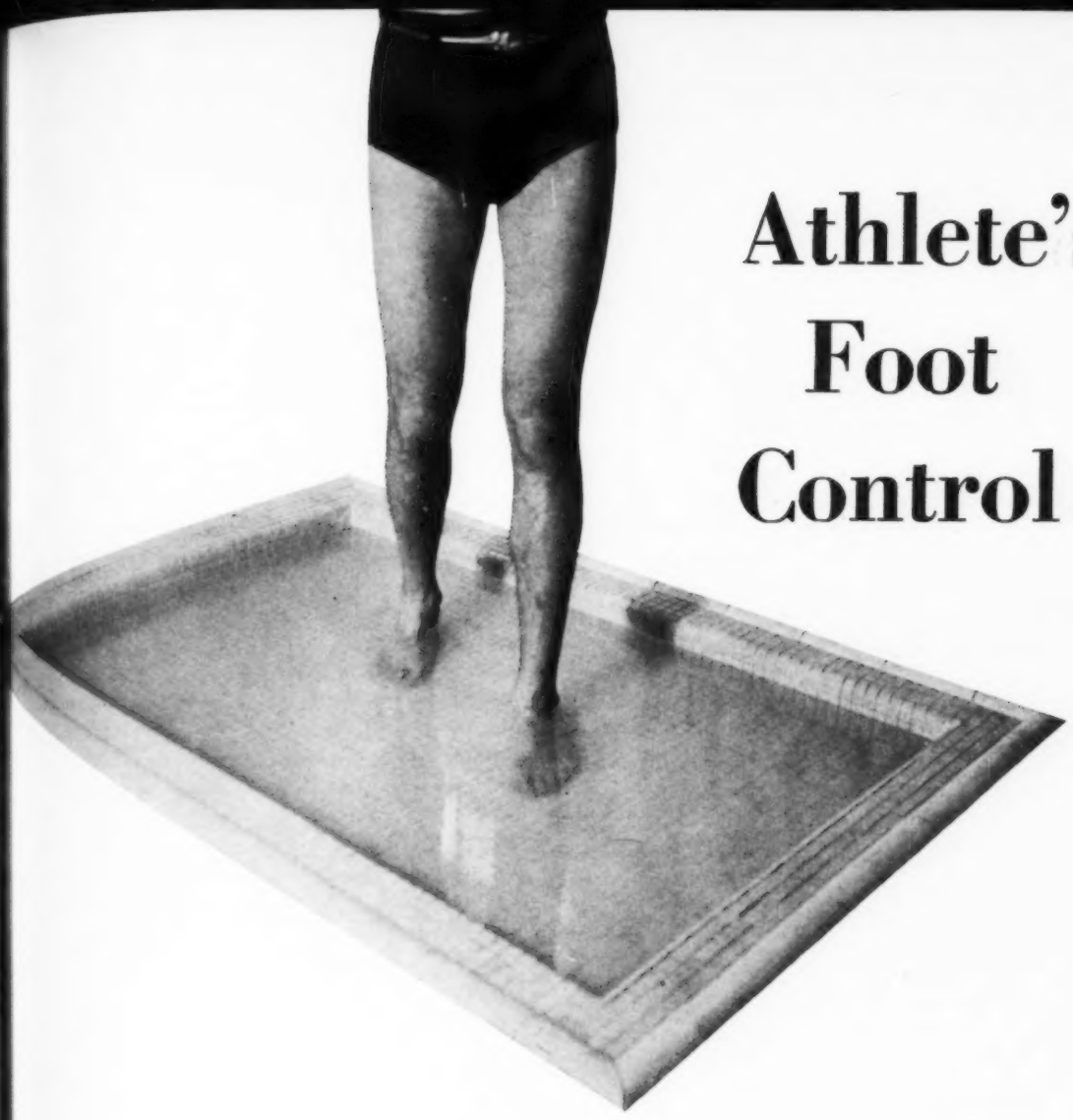

Athlete's Foot Control...

By Clarence Weirich and Robert Pokorny

THE C. B. DOLGE COMPANY

DURING the past year there has been a renewed interest in sodium thiosulfate for use in footbaths in public schools due to articles appearing in magazines dealing with school affairs, recommending this attractively cheap material. It seems timely to survey the subject more adequately and to present new experimental data which have a bearing on this subject.

The use of thiosulfate as a prophylactic footbath stems from Gould's work in the Albany schools. Gould[1] used 10-15 per cent solutions and stated "the sulfite solution was found efficient as low as 3 per cent—Four weeks after the thiosulfate baths were installed, the ringworm infection had entirely disappeared from the Junior High School—the bath is unhandy at times, however, and a 20 per cent powder of sodium thiosulfate in boric acid has been tried with much success on feet, footwear and floors." Sargent[2] reported handling an extensive outbreak of ringworm aboard ship. He used a common footbath of 10 per cent thiosulfate in galvanized tubs as a preventive but supplemented this with individual treatment with fungicides other than thiosulfate. For part of the time boric acid was mixed with the thiosulfate in the footbaths but was abandoned because the boric acid decomposed the bath with the precipitation of sulfur. Over 80 per cent of the cases were cured. Usher and Mitchell[3] have reported on the satisfactory handling

A REPORT ON THE EFFICACY OF THE SODIUM THIOSULFATE FOOTBATH AS A PRACTICAL CONTROL MEASURE

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of an outbreak in an orphans' home. The affected children were given individual treatment along conventional lines. Prophylactic measures included use of 2 per cent thiosulfate footbaths in the shower room, supplemented by the use of dusting powders containing salicylic and boric acid. It is to be noted that only Gould[1] has reported satisfactory control with thiosulfate alone. The results of the others are confused by the fact that supplemental measures were used involving other medicaments as foot powders.

Shaffer and Cary[4] carried out experiments in the Detroit public schools and found the thiosulfate footbath practically useless while results with hypochlorite were very promising. In discussing the paper of Kingery, Williams and Woodward[6] E. D. Osborne, who first demonstrated the value of hypochlorites in footbaths, stated that in his hands thiosulfate has been ineffective both as a prophylactic and as a curative agent. Prehn[7] found the thiosulfate footbath unsatisfactory aboard ship in a group of 520 men. It must be noted, however, that the figures he quotes on reduction of incidence do not justify that opinion. This about sums up the meager reports on mass prophylaxis with thiosulfate footbaths. There has never been published an adequate test surrounded by proper scientific safeguards on the use of thiosulfate in footbaths.

There is no confusion or difference of opinion among laboratory workers on the fungicidal value of sodium thiosulfate. With surprising unanimity, using a wide variety of tests and fungi they have found that it does not kill the dermatophytes commonly associated with ringworm of the foot and in most cases does not even inhibit growth. Schamberg and Kolmer[8] found a 1:20 solution not even fungistatic to *Trichophyton rosaceum*. Legge, Bonar and Templeton[9] observed that 10 per cent solutions did not kill *T. interdigitale* in 48 hours and stated "This is of interest when one considers its being advocated for use in footbaths." Li Hsueh Yi[10] found that it failed to kill laboratory organisms and questioned its clinical value. Loos[11] stated that it was neither fungicidal nor fungistatic against *E. interdigitale*. Claassen[12] grew *T. interdigitale* in media containing 10 per cent thiosulfate. Hesseltine and Hopkins[13] reported that thiosulfate failed to kill *Monilia albicans*. Kingery, Williams and Woodward[6] found that saturated solutions failed to kill *M. tropicalis* in 15 minutes. Kurotchkin[14] grew a large number of dermatophytes on media containing 10-20 per cent of thiosulfate. Only a few of the *Sporotrichum* and *Monilia* species failed to grow under those conditions. He concluded that thiosulfate must be of questionable value in footbaths. Birnbaum and White-Sweres[15] found it ineffective both in old and fresh solutions against a culture isolated from skin scrapings.

It has been urged against this evidence that the results *in vitro* do not necessarily parallel those *in vivo*, the implication being that clinical experience with thiosulfate soaks has established the treatment in therapy. The literature on the use of sodium thiosulfate in the treatment of various fungus diseases is voluminous and repetitious. It would take too long to present a fair digest here. If however, we consider ringworm of the foot alone and examine those clinical trials where it has been used by itself and not in combination with other materials such as acetic, tartaric or boric acids, etc., which decompose thiosulfate, the best evidence is that it is of no value. Regardless of whatever utility it may have in treatment of other fungus diseases it certainly has not proven effective in ringworm of the foot.

The thiosulfate footbath is used primarily as a disinfectant. Prevalent opinion among workers in the disinfectant field is that such baths should be tested in the same general manner as disinfectants, i.e., be required to kill a selected test fungus in the laboratory. Such reasoning led to the adoption of a tentative standard for such footbaths by the National Association of Insecticide and Disinfectant Manufacturers in December, 1939.

N.A.I.D.M. Tentative Standard

(1) Materials for use in footbaths in public places shall be capable of killing *Trichophyton rosaceum* within one minute at 20° C.

(2) Materials for use as floor fungicides shall be capable of killing *Trichophyton rosaceum* within 10 minutes at 20° C.

(3) The culture shall resist for one minute, a dilution of phenol of 1:80, but not one of 1:60.

An examination by Weirich[16] showed that 25 per cent thiosulfate solution

(*Turn to Page* 117)

TABLE 1
FUNGICIDAL EFFECT OF SODIUM THIOSULFATE
1 minute at 20° C.

Organism Tested	*Phenol Resistance*		*Per Cent Sodium Thiosulfate*				
	o	x	5	10	15	20	25
Achorion schoenleinii	*70	80	x	x	x	x	x
Trichophyton rosaceum	60	70	x	x	x	x	x
Epidermophyton cruris	50	60	x	x	x	x	x
Trichophyton interdigitale	70	80	x	x	x	x	x

TABLE 2
15% Sodium Thiosulfate vs. Test Organisms

Organism Tested	10 *Minutes Phenol Resistance*		*Hours exposed to thiosulfate*							
	o	x	0.25	0.5	1	2	4	8	24	60
T. rosaceum	*80	90	x	x	x	x	x	x	x	x
S. aureus	60	70	x	x	x	x	x	x	x	x
E. typhi	90	100	x	x	x	x	x	x	x	x

x means organism survived o means organism killed
* The figures in this column are dilutions i.e., 80 means 1:80 dilution.

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ROACH TESTING...

A Progress Report Describing A New Method of Testing Roach Sprays

By E. R. McGOVRAN and J. H. FALES*
U. S. DEPARTMENT OF AGRICULTURE

LABORATORY tests of insecticides should provide as many of the conditions under which the insect is actually controlled as it is practical to supply. This is especially true when the object is to compare an insecticide with a standard for the control of a pest. The Peet-Grady test, for example, duplicates about as closely as is feasible in the laboratory the conditions of actual control of adult houseflies in average-sized rooms that can be tightly closed. The natural habitat of roaches in buildings is difficult, if not impossible, to duplicate under laboratory conditions which themselves have to be uniformly and rapidly replicated. Three ways of testing petroleum-base roach sprays have recently been published as a result of the fellowship sponsored by the National Association of Insecticide and Disinfectant Manufacturers to develop methods for evaluating sprays for the control of crawling insects[1]. These methods throw a great deal of light on the possibilities and limitations of a laboratory method for testing roach sprays.

One of the first and often the major problem in evaluating insecticides is to obtain an adequate supply of the insect pest in a suitable and fairly uniform condition for testing. The short life cycle and the large number of eggs produced by houseflies, combined with the research and experience in rearing them, have produced an adequate and uniform supply of these insects for testing. Also the fact that the eggs and pupae of the housefly are unable to crawl or fly greatly facilitates handling. With roaches the life cycle is much longer, the number of eggs produced in a given time is less, there is no pupal stage, and, in the case of the German roach, the eggs are frequently moved by the insects, as they are normally carried by the female until they hatch. Some of these conditions make the rearing of roaches a slower procedure than the rearing of houseflies, while others call for different technique in handling. The fellowship on crawling insects sponsored by the N.A.I.D.M. has contributed very useful information on methods of rearing roaches[1].

The supply of test insects has a direct bearing on the type of test used. The use of a large number of insects tends to reduce the effect of individual variations. In the Peet-Grady method about 100 or 500 houseflies are used in each test, and possibly larger numbers could sometimes be used to good advantage. It seems doubtful that sufficient numbers of the more resistant stages of roaches can be economically produced to make it practical to use such large numbers of insects in each test. Moreover, a large number of roaches often crowd into a compact mass, in marked contrast with the rapid flight of houseflies under similar conditions. This crowding together of roaches may prevent some insects from receiving more than a small fraction of the dosage of insecticide received by the others. The speed and economy of rearing houseflies raises the question, What is the largest number of insects that can be used advantageously in each test? The slowness and expense of rearing roaches raises the question, What is the smallest number of insects that can be used advantageously in each test?

In laboratory experiments the practice is usually followed of selecting a resistant stage and age of the insect that occurs frequently where the pest is being controlled. In case an insect is not particularly destructive at the stage or age at which it is most resistant to insecticides, a less resistant stage may be selected.

On this basis an investigation was started to devise a method that would apply a variable, but exact, quantity of direct spray to roaches and to determine the difference in resistance to pyrethrum-petroleum oil sprays of adult females, adult males, and large nymphs. The method to be developed would measure the effect of the spray that hit and adhered to the roaches and would reduce the fumigating effect, the effect of the residue on sprayed surfaces which the insect might contact, and the effect of minute droplets of spray floating in the air.

When a petroleum-oil spray is discharged directly from the sprayer onto the roaches at close range, the amount delivered in a very short time is usually more than enough to cause 100 per cent mortality. If the sprayer is turned on and off rapidly to reduce the amount applied, the type of spray produced is often quite different from that produced when the sprayer is operating

* Before Natl. Assn. Insecticide and Disinfectant Mfrs., Dec. 1-2, 1941, New York.

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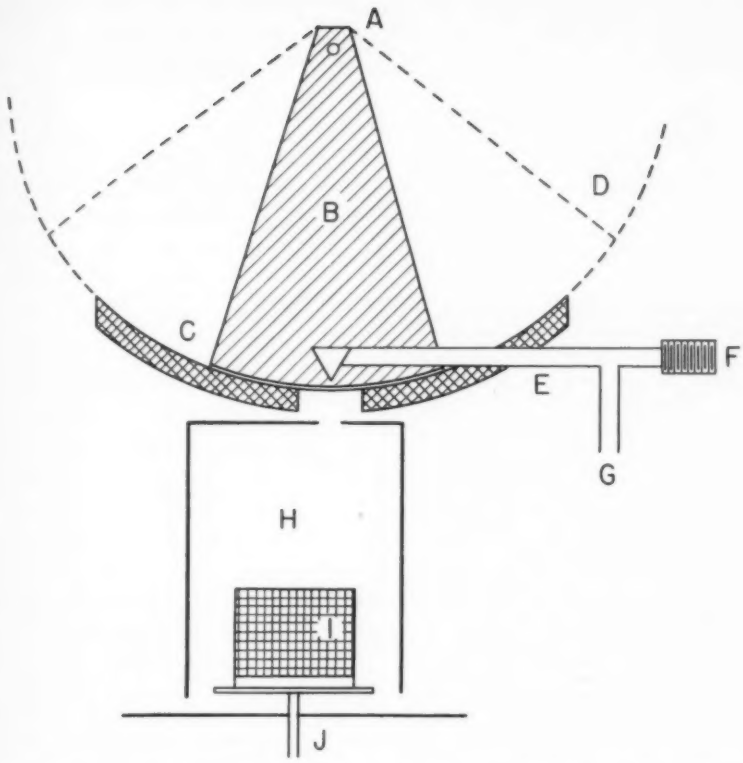

Fig. 1—Diagram of direct-spray apparatus for testing roach sprays. A. Point of suspension of swinging partition that controls spray deposit. B. Support of swinging partition. C. Swinging partition showing opening spray can pass through during each swing. D. Broken lines show direction of swing of the partition during the spray application. E. Atomizer type sprayer. F. Air inlet. G. Spray inlet. H. Glass cylinder showing small hole in top which allows spray to enter. I. Metal pen that holds insects. J. Rotator that turns pen of roaches during the spray application.

continuously. Also extremely short intervals of spraying are difficult to time accurately if the valve controlling the spraying is operated manually. To meet this difficulty a pendulum apparatus was constructed, which permitted the spray to pass through a small opening onto the roaches only while the pendulum was in one phase of its swing. The pendulum was relatively short, so that the speed at which it swung was rapid. As the rate of swing of a pendulum of a given length operating through a given amplitude is constant, such an apparatus should give an accurately timed, although very brief, exposure of the insects to the direct spray.

Description of Apparatus

THE apparatus (fig. 1) produces a direct spray from a nasal atomizer (*E*) that strikes a group of roaches confined in a circular metal pen (*I*) 2½ inches deep and 3½ inches in diameter (tin cups with the handles removed). The inside surface of the wall of the pen was covered with a thin film of heavy medicinal-grade petroleum oil to prevent the roaches from escaping or clinging to the sides during treatment. The bottom of the pen was covered with filter paper. To reduce the variation due to uncontrolled air movement, the pen was covered with a glass cylinder (*H*) 9 inches high and 6 inches in diameter, having a solid top except for an opening ¾ inch in diameter through which the spray was directed. Preliminary tests had shown that the pattern of the spray deposit directly below the atomizer was a heavy circle with lighter deposits inside and outside it. Consequently, this opening was slightly to one side of the center and the pen was rotated to obtain a more uniform deposit. The bottom edge of this cylinder was raised ¼ inch above the floor of the spray chamber to allow the stream of air and spray that entered the cylinder to escape without returning through the hole in the top. Between the nozzle of the atomizer and the opening in the top of the cylinder was mounted a partition (*C*), which swung back and forth like a pendulum. This partition was 2 inches wide, 14 inches long, and crescent-shaped. In the center was an opening 1 inch wide and 2 inches long. When the partition was swung back and forth, this opening passed below the atomizer nozzle, allowing spray to pass into the cylinder and onto the insects. The length of the pendulum was 10 inches. Pieces of paper towel and blotter held on the upper side of the partition at each side of the opening absorbed the spray that struck the partition and prevented it from dropping into the cylinder.

Two pounds of air pressure was used to operate the atomizer. This low pressure gave a wet spray of relatively large drops and produced very little fog. The air pressure was measured with a mercury column and controlled by a reducing valve and a Bunsen valve.

The pendulum was pushed to one side until the atomizer nozzle was directed at the partition about 1 inch from one end. The air pressure was turned on and the atomizer began spraying on the partition. The partition was held in this position for a second or two until the mercury gage indicated that the correct air pressure had been established. The pendulum was then released and allowed to swing uniformly the number of times required to give the desired deposit. This period ranged from 5 to 25 seconds. The pendulum was then stopped in the same position as at the start and the spray turned off. During the spraying the pen of roaches was rotated at about 40 r.p.m. The glass cylinder around the pen of roaches was removed 30 seconds after the spraying started, and 90 seconds later the roaches were transferred to

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a 6-inch Petri dish with a screen cover and provided with food and water. Knock-down and mortality counts were made in these Petri-dish recovery cages.

Insects Used

THE German cockroach (*Blattella germanica* [L.]) was used. Young nymphs were collected from stock cultures twice a week and placed in battery jars or other containers with dry dog-food pellets and water. This commercial dog food was a mixture of a large number of food materials of which approximately 25 per cent was protein and 3.5 per cent fat. As soon as one-fourth or more of the nymphs in a container had become adults, the whole culture was placed on an 8-mesh screen. The adults and large nymphs that could not pass through this screen were selected for the tests. A few adult males could pass through this screen. The roaches were then chilled in a pan or glass dish set on a mixture of ice and water. The temperature usually fell to about 6 or 8° C. and the movements of the roaches slowed down rapidly. As soon as the roaches became sluggish, they were picked up with forceps and placed in groups of 15, the males, females, and nymphs being kept separately.

When all the roaches were chilled so that they were unable to crawl, they were removed from the ice. The sorting was usually complete before they had warmed up enough to become too active to handle. The chilling time lasted 25 to 35 minutes. The roaches were allowed to warm up until they appeared normally active before being sprayed. To check on the effect of this chilling, a group of each class of insects was left unsprayed and held for 5 days; no mortality occurred.

Results

A SUMMARY of from 29 to 54 comparable tests of pyrethrum sprays, ranging in pyrethrin content from 1 to 5 mg. per milliliter and in deposit from 2.6 to 0.8 mg. per square centimeter, against adults and large nymphs of the German roach gave the following results:

Stage	*Per cent Mortality*
Adult males	98
Adult females	73
Nymphs	87

A series of six similar tests on each group, with a much heavier deposit (7.3 mg. per square centimeter) of highly refined kerosene without pyrethrum added, gave the following results:

Stage	*Per cent Mortality*
Adult males	60
Adult females	41
Nymphs	97

These mortality counts were made three days after the spray was applied.

In the case of the pyrethrum sprays daily observation on the number of "down" roaches and the mortality for four days in one series of tests and for three days on all series, with a subsequent observation at five days in two series, showed that under the conditions of these tests the mortality of the adult males approached its maximum after one day and increased very little after two days. The mortality of these males was very high and in over half the tests reached 100 per cent on the second day. The adult female roaches showed a much lower mortality on the first day, a sharp rise on the second day, an appreciable rise on the third day, and a slight rise on the fourth and fifth days. The nymphs occupied an intermediate position between the adult males and females, although the rise in mortality after the third day was much less than among adult females.

Figure 2 gives the results of toxicity tests on adult females with pyrethrum sprays of various pyrethrin contents. The two columns to the right of the center of the figure—that is, the 1941 O.T.I. (Official Test Insecticide) and the 500 mg. of pyrethrins per 100 ml. of refined kerosene—are not directly comparable with the other five columns, as these tests were run on different days. Each percentage of mortality given is the average of six tests of 15 insects each. These sprays knocked down 99.7 per cent of the adult female roaches in five minutes or less.

The calculated spray deposit of the O.T.I. in the Peet-Grady test is also shown to illustrate the relative amounts of deposit.

In six tests of a spray that contained 10 per cent of sesame oil and 1 mg. of pyrethrins per milliliter in refined kerosene, 62 per cent of adult female roaches were killed as compared with 68 per cent in six tests of a spray containing 1 mg. of pyrethrins per milliliter in refined kerosene but without the sesame oil. Similar results were obtained in three tests each with adult males and large nymphs.

Observations with oil containing a dye indicated that three or four swings of the pendulum past the atomizer were needed to give a uniform distribution of spray over the floor of the pen holding the roaches. Weighings of glass slides covered with filter paper the same size as the slide showed that the average amount of spray delivered by each passage of the opening below the atomizer was 0.104 mg. per square centimeter. The maximum average deposit that was measured was 0.109 mg. and the minimum 0.098 mg. per square centimeter. The averages were obtained from dosages deposited by 24 or 70 swings of the pendulum. To reduce evaporation, a glass slide was laid over the oil-sprayed filter paper while it was being weighed.

In tests of pyrethrum-petroleum-oil spray, or the oil alone, adult female German cockroaches were found to be more resistant than the males or large nymphs. This result is similar to that reported by Woodbury[5]. According to Parker and Campbell[4] unpublished work by T. T. Haack indicates that large nymphs are more resistant than adult females. As the adult female German roaches are highly resistant to insecticides and, of course, are the source of rapid reinfestation under practical conditions, it appears that any laboratory test for evaluating sprays for the control of German roaches should show the effectiveness of insecticides against this stage of the insect.

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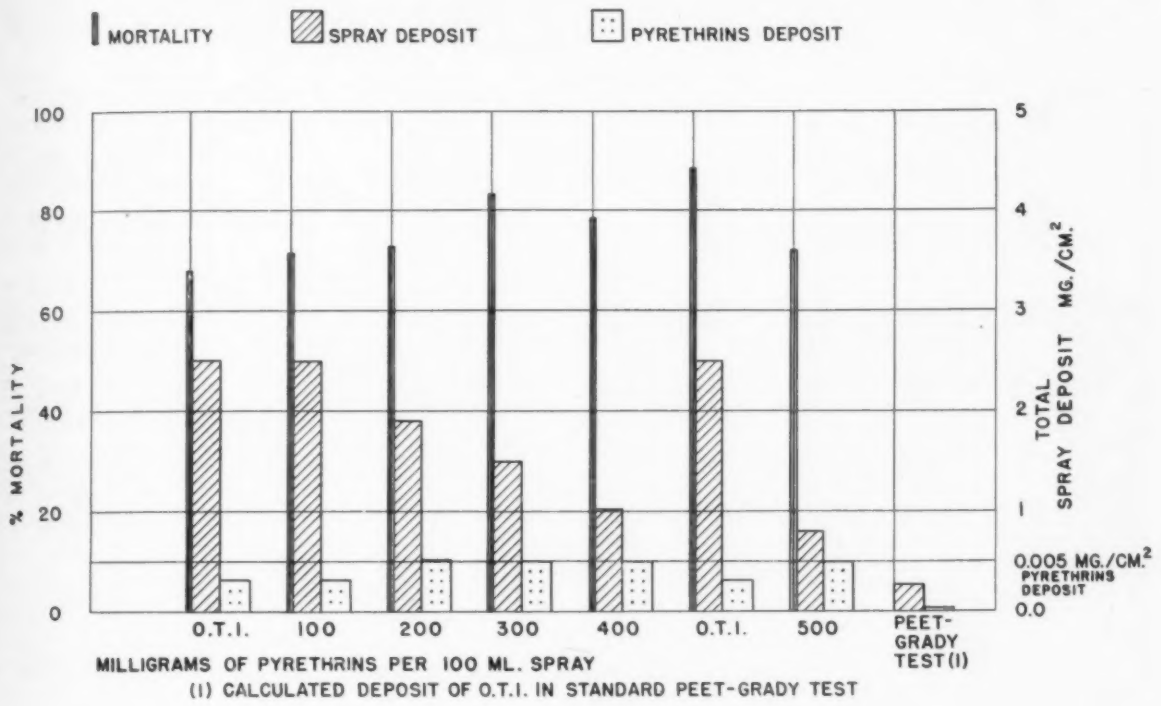
FIG. 2 TOXICITY OF PYRETHRUM IN REFINED KEROSENE TO ADULT FEMALE GERMAN COCKROACHES.



The age of the adult females may have a marked influence on their resistance to insecticides. McCauley[3], in reviewing the work of Gould and Deay, shows that the average adult life of German roaches is 225 days at room temperature and 151 days at a constant temperature of 85° F. At what time in this period of possibly 5 to 7½ months are the insects the most or the least resistant to insecticides? An answer to this question may be of considerable importance if the adult stage of this insect is used as a test insect. While the exact age in days of the insects used in the tests given in this report are not recorded, it is known that practically all the adults used had been in this stage less than two months.

The large nymphs were much less resistant to a heavy application of oil without pyrethrum than were adult males. Inasmuch as the spray was deposited on the dorsal surface of the insects, it is probable that the wings of the adults absorbed the oil and in this manner gave them some protection from its toxic action.

The increase in mortality on the second and third days after treatment indicates that death or recovery from pyrethrum sprays does not occur so promptly among roaches as among houseflies. In figure 2 the two mortalities caused by the O.T.I. (68 per cent and 88 per cent) show that considerable variation occurs when the same material is tested at different times and on different lots of roaches, even though the same rearing methods and test procedures are used. The mortalities caused by the O.T.I. and the spray containing 100 mg. of pyrethrins per 100 ml. are approximately the same (68 per cent and 71 per cent). These last two materials were tested under comparable conditions.

The deposit of the 1941 O.T.I. required to kill 68 per cent or 88 per cent of the adult female roaches was found to be about nine times as great as the calculated deposit of the O.T.I. in the standard Peet-Grady test. In calculating this deposit, it was assumed that all the material sprayed into the chamber settled uniformly over the floor. The deposit used on the roaches was greater than that reported by Woodbury[5] as being necessary to kill 50 per cent of the adult female German roaches with the 1938 O.T.I., and more than the deposits of O.T.I. reported by Parker and Campbell[4] as killing 77 per cent and 45 per cent of the same stage of this insect. A spray containing 500 mg. of pyrethrins per 100 ml. killed 72 per cent of the roaches with a deposit of approximately three times the calculated deposit in the standard Peet-Grady test.

The addition of sesame oil to pyrethrum in petroleum-oil base does not appear to enhance the toxicity of the sprays to roaches. Eagleson[2] found this combination effective against the housefly but did not report tests against roaches.

The amount of spray applied to the insects by each swing of the partition could be regulated by varying the spray nozzle, the air pressure, the level of the insecticide on the spray inlet, or the length of the opening that passes between the atomizer and the insects.

(*Turn to Page* 117)

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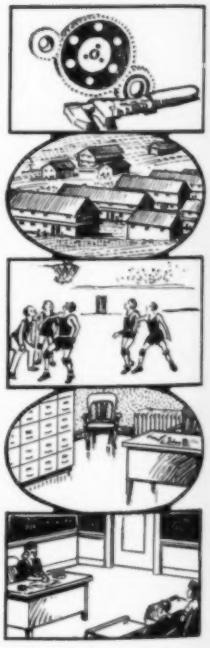

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NEWS...

Sanitary Suppliers to Meet

At least 300 delegates are expected to attend the annual convention of the National Sanitary Supply Association, Inc., Milwaukee, which is to be held April 20-22 at the Hotel Morrison, Chicago.

G. W. Breuer Commissioned

Grant W. Breuer, executive head of Breuer Electric Manufacturing Co., Chicago, electric insecticide sprayers, has just been commissioned as a second lieutenant in the Army Ordnance Corps., and assigned to duty at the Chicago Ordnance district headquarters. Mr. Breuer received training as an engineer at Purdue University. Since the death of his father, Adam Breuer, he has been closely identified with the company.

Add "White Sail" Paste Wax

The Great Atlantic & Pacific Tea Co., is offering a 16-oz. can of wax paste as a new item in their line of household soaps and cleaning materials, packaged under their "White Sail" private label. The product sells for 29 cents.

Lehn & Fink Earn More

Lehn & Fink Products Corp., New York, reported a new profit of $348,387, equal to 87 cents a common share, for the six months ended December 31. This compares with a profit of $312,873, or 78 cents a share, for the six months ended December 31, 1940.

Robt. White, Jr. to Navy

Robert C. White, Jr. of the Robert C. White Co., Wyndmoor, Pa., a member of the U. S. Naval Reserve, has been called to active duty with the Navy as a lieutenant in ordnance. He has not yet been assigned to a station. Mr. White who was a member of the Board of Governors of the National Association of Insecticide & Disinfectant Manufacturers, resigned from the Board in giving up active participation in business for

ROBERT C. WHITE, Jr.

the duration of the war. He was elected to the Board at the recent annual meeting of the N.A.I.D.M. He is the son of Robert C. White, Comptroller of the City of Philadelphia and former president of the N.A.I.D.M.

Sanitary Supply Assn. Catalog

The National Sanitary Supply Association is distributing to its members a master catalog of the advertising literature of 31 manufacturers who are members of the association. The book is divided into nine sections covering all the products bought by the jobbers. Members of the association may obtain their copy by writing the secretary, E. C. Kratsch, 734 E. Lexington, Milwaukee, who compiled the book.

Prof. Ext. Ass'n Elects

Joseph Finneman was re-elected president of the Professional Exterminators Association, Inc., New York, at a dinner held February 10 for the annual election of officers. J. L. Huberman was elected vice-president succeeding H. S. Bussell; William Farrel was re-elected treasurer and M. H. Oachs was re-elected secretary. The directors are H. Plough, H. Kruse, S. B. Ascher and C. Pomerantz.

Quaker Distributes Bonuses

Quaker Chemical Products Corp., Conshohocken, Pa., recently distributed a portion of 1941 earnings to all office, factory and laboratory employees. Bonuses were based on present salary, years of service and the value of the individual to the corporation. Some employees received the equivalent of three months' salary. A similar bonus was paid in July, 1941.

Sodium Fluoride Easier

Reports of the sodium fluoride supply situation as of the first of March indicate that supplies are more plentiful and that the resale price has dropped sharply from previous high levels. Where sales of sodium fluoride were reported at 22c and up early last month and considerably higher than that previously, quota-

NAIDM Shifts to Chicago . . .

THE 28th annual mid-year meeting of the National Association of Insecticide & Disinfectant Manufacturers will be held at the Edgewater Beach Hotel, Chicago, on June 8 and 9. This is an emergency shift just decided upon by the Board of Governors of the Association. The mid-year meeting was originally scheduled tentatively for the Hotel Hershey, Hershey, Penna. The decision to shift from a resort hotel to meet in a large city was occasioned by "emergency conditions" due to war, according to John N. Curlett of McCormick & Co., Baltimore, president of the Association. Further details of the meeting plans will be announced later.

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tions of fairly large lots for insecticide purposes have been reported recently at 12c per pound. Last month, several lots of adulterated sodium fluoride were uncovered in the hands of pest control operators and insecticide manufacturers, adulteration being reported up to as high as 60 per cent with talc and other inert materials. A further easing of the market is expected for the month of March as new production is anticipated to come on the market. From Washington, reports state that if the price shows any inclination to rise to the levels in effect two months ago in the resale market, a price ceiling will be placed on this material.

No Typhus Danger Here: Rice

N. Y. Health Commissioner John L. Rice, in a broadcast last month, reassured the people of New York that there is no danger of an outbreak of epidemic typhus in the United States. He emphasized that typhus cannot make headway where cleanliness prevails, and pointed out that more soap is used in the United States than in any other country in the world. His remarks were prompted by numerous newspaper reports of the prevalence of epidemic typhus in parts of Europe and North Africa.

Expand Silver Bath Distribution

Mac Selworth Corp., Ardmore, Pa., has extended distribution of its "Silver Bath," compound for cleaning silverware to middle western territory, with the P. D. Ridenour Sales Co., Chicago, in charge of the promotion. The preparation, in paste form, is dissolved in boiling water, in which the silverware is immersed briefly, then wiped dry without any rubbing required for polishing. Distribution has previously been confined to eastern territory.

Harding Joins Flying Cadets

H. Wallace Harding, secretary of H. C. Harding, Inc., Philadelphia, specialty oils for the textile trade, recently enlisted in the Air Corps, and is now stationed at Maxfield, Ala.

Curlett to Washington

John N. Curlett, vice-president of McCormick & Co., Baltimore, and president of the National Association of Insecticide & Disinfectant Manufacturers, has just joined the Packaged Foods Section, Food Supply Branch of the War Production Board. He took up his new duties in Washington, March 3, making his headquarters in the Social Security Building.

JOHN N. CURLETT

Talks on Rat Control

G. C. Oderkirk, district agent for the predator and rodent control division of the U. S. Dept. of the Interior, addressed the Woman's City Club of Chicago, Jan. 19. "What Other Localities Are Doing on Rat Control" was the subject of his talk, delivered in connection with the Club's rat extermination campaign.

Develops New Insecticide

Dr. S. Markovitch, of the University of Tennessee Experiment Station, has developed a new insecticide for use in cockroach control, which is non-poisonous to humans, according to an article which appeared recently in the Knoxville (Tenn.) *News-Sentinel*. The new formula is described as the solution to the shortage of sodium fluoride. "This new insecticide is a proved success." Dr. Markovitch is quoted as saying, "and a few minor formula changes are being completed before the University patents it. By hundreds of laboratory tests, we have discovered certain powerful activating agents for sodium fluoride. Hence, only a fractional portion of the latter is necessary to make the formula highly effective as an insecticide when the sodium fluoride is combined with the activator."

Omission

In an article entitled "Canada's Pest Control Act," which appeared in the February isue of *Soap and Sanitary Chemicals*, we neglected to include the name of the author, A. M. W. Carter, inspection assistant, department of agriculture, Ottawa.

Revises Used Drum Schedule

Early last month, the OPA revised price schedule No. 43, on used steel drums, limiting the price ceiling to three sizes only: 50 to 58 gallon capacity; 29 to 33 gallon capacity; and 14 to 16 gallon capacity. No other sizes are covered by the price ceiling as amended. The ceiling price for raw used drums is extended to any purchaser instead of only the user and reconditioner as before. The definition of reconditioned drums has been tightened, and allowance for pick-ups provided. The three sizes covered by the order are said to include 98 per cent of all steel barrels and drums.

West Coast PCO's Meet

The fifth annual Pacific Coast Pest Control Operators' conference was held February 19-21 at the University of California, at Berkeley, Cal. Among the talks featured at the meeting were the following: "Recent Developments in Pest Control," by G. F. MacLeod; "Household Bugs," by R. L. Usinger; "Biological Interrelations of Household Insect Pests," by E. O. Essig; "The PCO in War Time," by E. G. Mills; "Mechanisms of Infection of Arthropod-Borne Diseases," by W. B. Herms; "Attractants and Repellants," by W. M. Hoskins; "Household Rodents," by T. Storer; "Fungi," by H. N. Hansen; and "Wasps and Hornets," by A. E. Michelbacher.

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Buettner Visits PCO Locals

Visits to PCO local associations at Houston, Dallas and Ft. Worth, Texas, and St. Louis, were

WILLIAM BUETTNER

made recently by William O. Buettner, secretary of the National Pest Control Association, who was guest speaker at each of the meetings. On January 30th, Mr. Buettner addressed a group of pest control operators at Houston, which included visitors from San Antonio, Laredo and Dallas, leading a three hour discussion on shortages of supplies, chemicals, equipment, legislation, the rat control program, and the pest control industry in war service. Fumigation practices with emphasis on precautionary measures were also discussed.

On January 31st, Mr. Buettner spoke at a joint meeting of pest control operators from Dallas and Ft. Worth. The position of the pest control operator in war service as a "pest control expeditionary force" was stressed. He made recommendations to the PCO's for furthering their recognition as an essential industry in public health work.

The place of the pest control industry in civilian defense was discussed at a meeting of the St. Louis Pest Control Operators' Association, held February 1st at the Hotel Statler. Mr. Buettner emphasized that the present offers a wonderful opportunity for recognition of the essential nature of the industry by health officials. Industry cooperation is needed now, he said, so that the necessary chemicals for operation may be obtained.

Hunt, Orbis, Join N.A.I.D.M.

Hunt Manufacturing Co., Cleveland, has just been admitted into active membership in the National Association of Insecticide and Disinfectant Manufacturers, Inc., New York. L. H. Gerson is president of the company, which makes disinfectants, soaps, and waxes for the distributing trade. Orbis Products Corp., New York, is also a new member of the association. Orbis has branches at Chicago, Philadelphia, Boston and Memphis, and supplies a line of waxes, essential oils, perfume bases, aromatics, gums, oleo resins, stearic acid, and zinc oxide.

Standard Synthetics Expands

Standard Synthetics, Inc., New York, esesntial oils and aromatic chemicals, is currently expanding to take over greatly increased space at its premises at 119 West 25th St. The expansion will give the firm approximately three times the space occupied at present, it is said, and will enable it to handle its increased trade more effectively. For over a year, the company has been specializing in Spanish essential oils.

Newport Appoints Boyer

Jerome L. Boyer, who has been associated with Newport Industries, Inc., New York, since 1929, has just been appointed director of technical sales of the company, succeeding E. V. Romaine.

Isco Marks 25th Year

Isco Chemical division of Innis, Speiden & Co., New York, is currently celebrating the 25th anniversary of its establishment. The electrolytic plant at Niagara Falls, N. Y., which began operations in 1917, was originally operated as Isco Chemical Co., and was under the direct supervision of Eben C. Speiden. The first products manufactured were chlorine and caustic soda. In 1918 caustic potash was first produced at the plant, and today it is an important source of potash salts products.

Flett Heads Amer. Products

Raymond L. Flett, formerly vice-president and general manager of the American Products Co., Cincin-

RAYMOND L. FLETT

nati, has been elected president of the company. He succeeds Edgar J. Mills, who was made chairman of the board. Officers reelected are Ralph L. Lippert, vice-president and general sales manager, and Harold E. Hoskins, secretary-treasurer.

The company manufactures the Veeco line, comprising some 40 products sold to chain stores in the variety, hardware, drug and grocery trades.

Powell Changes Territories

John Powell & Co., New York, have announced a rearrangement of sales territories among present representatives in the Mid-west and Pennsylvania. Hereafter, David W. Lynch will represent the Powell company in the State of Michigan in place of Charles G. W. Campbell. Mr. Lynch at present covers other Mid-western states from the company's Chicago office which is under the direction of Harry J. Ahles. Mr. Campbell whose headquarters are in Pittsburgh, will continue to cover Western Pennsylvania, Ohio and adjacent territories for Powell.

Reid Heads WPB Branch

Dr. Ernest W. Reid, of Pittsburgh, was recently named chief of the chemicals branch of the War Production Board, Washington, D. C.

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Liquid Olive Oil Soap Shampoo
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Restrict Tin Container Use

DRASTIC restrictions were imposed on use of tinplate and terneplate in the manufacture of containers in Conservation Order M-81 issued February 11, by the War Production Board. The section of the order covering products of sanitary chemical manufacturers is Table III, listing Special Products Cans and restrictions imposed upon their use. For such cans tinplate may be used to manufacture all or any part of such can only if specific authority is given. The use of terneplate is similarly restricted, and both may be used only to the extent to which either or both were used in 1940 (i. e. 100 per cent of 1940) unless otherwise stated. Where specific authority to use tinplate or terneplate is not given, blackplate or other material must be used.

Subsequently, on February 20, the restrictions were temporarily suspended to allow use of cans which were already made up at the time the order was issued. Can manufacturers were advised by the WPB that the restrictions imposed by Order M-81 were suspended until April 30, or until otherwise ordered for the following purposes: to permit the manufacturer to sell and deliver cans made in whole or in part of tinplate or terneplate, provided they had been completely manufactured on or before February 11; and to allow the manufacturer to assemble, sell and deliver such cans, all the component parts of which had been lithographed, cut or otherwise prepared for assembly before February 11. It was expressly prescribed that this permission should not be construed to permit use of any unprocessed tin or terneplate. All Special Products Cans released for use on the basis of this order are to be subject to the quota provisions of the original order and to be charged against such quotas.

Table III lists the following sanitary chemical products, with restrictions on container use as noted:

Fly Spray. Bodies: terneplate. Fly Spray (pyrethrum and rotenone base), bodies: tinplate.

Carbon Bisulfide and Triethanolamine. Terneplate throughout, except when chemically pure, in which case tinplate throughout may be used.

Sodium Silicate. Only in 5-gallon or larger cans; terneplate throughout.

Dry Cleaners. Only in 1-qt., 1-gal., or larger cans. Bodies: terneplate.

Phenols, including Carbolic Acid and Lysol; tinplate throughout.

Benzol, including but not limited to, naphtha. Bodies: terneplate.

Nicotine Sulphate. Tinplate throughout and only in 1-qt. or larger cans.

Soap, liquid. Pack only 50 per cent of 1940 pack and only in 1-qt. or larger cans; tinplate throughout.

Glycerine. (C.P. and U.S.P.) Tinplate throughout. In cans of 1-qt. to 1-gal. pack only 50 per cent of 1940 pack. In 1-gal. or larger cans, 100 per cent of 1940 pack.

Polish. Terneplate throughout. Only 50 per cent of 1940 pack.

Waxes.

Paste: Bodies: terneplate. Only 25 per cent of 1940 pack.

Emulsions: terneplate throughout. Only 25 per cent of 1940 pack.

Disinfectants, including, but not limited to, crystals, in 1-qt. or larger cans. Tinplate throughout. Only 50 per cent of 1940 pack.

—— ♦ ——

Ky. Bill Covers Insecticides

A bill, which if made law, would require highly detailed labeling to show the ingredients of insecticides, fungicides, and rodenticides, and registration of these items, has been introduced into the Kentucky State Legislature as House Bill No. 96. If passed in its present form, it will be necessary for these products sold within the state, which contain two or more ingredients, to show on the label the common or usual name of each active ingredient. Labeling must also carry explicit directions for use and warnings against use in pathological conditions. The bill also covers advertising and provides for the regulation of sale. All items must be registered, requiring a fee of $1.00 for each article up to $50.00.

Other bills concerning insecticides which have been introduced into state legislatures recently are the following: New Jersey Senate No. 30, which would prohibit the use of polishes containing hydrocyanic acid or salts thereof for cleaning or polishing eating utensils in any food establishment; and New Jersey Senate No. 28, which would prohibit the sale of any poisonous substance as an insecticide unless labelled as "poison" with the symbol of skull and cross bones, prohibit the use of sodium fluoride unless colored nile blue, restrict the use of poisonous insecticides in food establishments, and prohibit the use or sale of insecticides containing living bacterial organisms.

—— ♦ ——

Thompson To WPB Post

Charles T. Thompson, president of Thompson-Hayward Chemical Co., Kansas City, Mo., was recently drafted to serve as a dollar-a-year man in the chemical division of the War Production Board in Washington, D. C. Mr. Thompson is consultant to Dr. E. W. Reid, assistant chief of the chemical section.

—— ♦ ——

Moth-Proofing Product

A moth-proofing composition comprises essentially one of the group consisting of magnesium silicofluoride and ammonium silicofluoride, with a comparatively small amount of tartar emetic. Lawrence W. Roberts. Canadian Patent No. 401,253.

—— ♦ ——

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melting above 100° C. The resin must be completely soluble in mineral spirits at normal room temperatures. The materials are used within the reciprocal ratios of 2:3 to 3:2. Frank W. Corkery, to Pennsylvania Industrial Chemical Corp. U. S. Patent No. 2,255,242.

Parasiticidal Compounds

A preparation for killing parasites contains as an active ingredient a distillable product resulting from condensing benzol with an amylene dichloride; also a compound of reaction of acetonyl acetone with ammonium thiocyanate; also di-(2, 5-dimethyl-pyrrolyl)-ethane. Dominion Rubber Co. Ltd. Canadian Patents 401,636, 401,637, 401,638.

Fungicide

A fungicide contains as an active constituent a monohydroxy diarylamine or closely related secondary amine. Wm. P. ter Horst, to Dominion Rubber Co. Canadian Patent No. 402,188.

Insecticide

An insecticide consists of a solution of an acyl sulfide in a hydrocarbon solvent, this solution being dispersed in water. Clyve C. Allen. Shell Development Co. Canadian Patent No. 402,541.

Insecticide from Patchouli

The waste liquor from the steam-distillation of patchouli leaves is mixed with light mineral oil to form an insecticide. K. Sugao. Japanese Patent No. 134,329.

Rotenone Dusts

(*from Page* 95)

magnet. We have not yet electrocuted any aphids but it may be possible.

No attempt should be made to draw too far reaching conclusions from the results described in this paper. It is hoped that others will be encouraged to make similar experiments along the same line in order to determine possible applicability of these ideas to other crops and other insects.

Athlete's Foot Control

(*from Page* 99)

failed to meet this standard, killing neither a suspension of spores[5] of the test organism nor of other representative fungi as shown in table I (see page 99). Further experiments seem to indicate that not only are thiosulfate footbaths valueless but they may be a source of danger. Dr. N. D. Duffett in this laboratory using the Food and Drug Administration technic has found that such baths do not kill the usual test bacteria even on exposures of several days. If pyogenic bacteria can survive that long in thiosulfate solutions, such footbaths must be considered potentially infectious and a public health hazard.

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Roach Testing

(*from Page* 107)

Summary

A method of testing direct sprays of contact insecticides against German cockroaches is described. The deposit of spray is controlled by an opening in a partition that swings back and forth like a pendulum through the spray stream. Adult females were found to be more resistant to pyrethrum - petroleum - oil sprays than were adult males or large nymphs. The nymphs were intermediate in resistance between the adult males and females. The deposit of the 1941 O.T.I. required to kill 68 or 88 per cent of the adult females was found to be about nine times as great as the maximum deposit that might occur on the floor of the chamber during the standard Peet-Grady test. A spray containing 500 mg. of pyrethrins per 100 ml. killed 72 per cent of the adult females with a deposit of approximately three times the calculated deposit in the standard Peet-Grady test.

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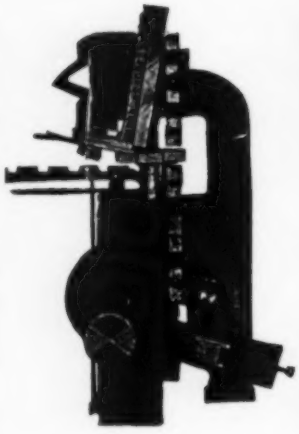

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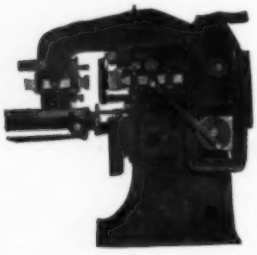

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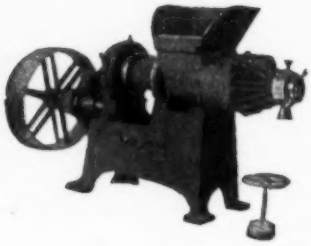

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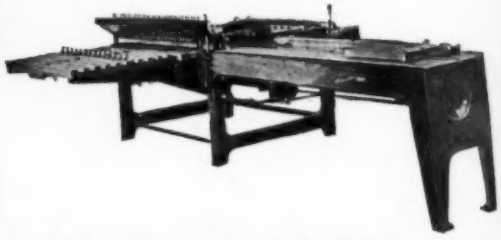

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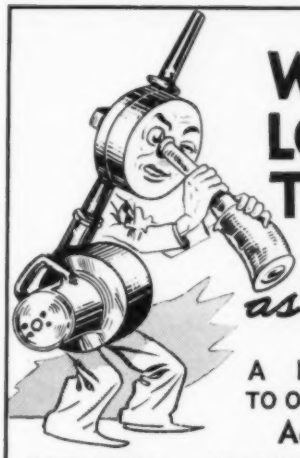

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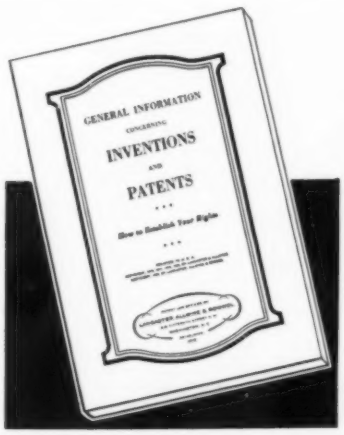

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* * *

A new plant is under way in Florida to produce essential oils of orange and grapefruit to vie with California producers. War sure does stimulate home industry.

* * *

Says *Printers' Ink*, ". . . next product to be rationed, soap and soap products are first on the list." Somebody most certainly has been pulling our leg. We heard that it was to be sugar. But then, P. I. must know or they wouldn't print any such startling news.

* * *

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* * *

The 1942 *Blue Book*, the standard guide of raw materials and bulk products of the soap, insecticide, disinfectant, chemical specialty, and allied groups, will be published about April 1. Owing to a restricted edition this year, free copies will be sent only to regular subscribers to *Soap & Sanitary Chemicals* whose subscriptions are paid up at the time the *Blue Book* is published. If you want a copy of the *Blue Book* this year, be sure that your subscription to *Soap & Sanitary Chemicals* is paid up now. If you have received a subscription renewal notice lately, send in your check immediately and you will be assured a free copy of the 1942 *Blue Book*.

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Used for Protecting Food Crops from Destruction by Insects especially on sugar beets, beans, cabbage, potatoes, tomatoes, peas, grapes, squash, cucumbers, melons, cranberries and others	28.7%
Used for Destroying Insects that Attack Stored Foods, in flour mills, bakeries, packing plants, wholesale groceries, etc.	14.7%
Used for Protecting Dairy Cows from Insect Pests	12.3%
Used by Home Gardeners	2.7%
Used in Household Insecticides, for destroying flies, mosquitoes, roaches, bed bugs, ants, and other household insect pests	19.2%
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